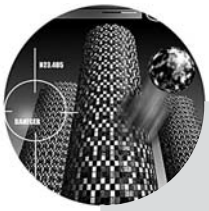
EPSON®

dreamio™

Home Projector

EMP-TW20

User's Guide



3LCD

About the Manuals and Notations Used

Types of Manual

The documentation for your EPSON projector is divided into the following two manuals. Refer to the manuals in the order given below.

1. **Safety Instructions/World-Wide Warranty Terms**

   This manual contains information on using the projector safely, and also includes *safety instructions, world-wide warranty terms* booklet and a troubleshooting check sheet.
   Be sure to read this manual thoroughly before using the projector.

2. **User's Guide (this manual)**

   This User's Guide contains information on installing the projector, basic operations, using the configuration menus, troubleshooting and maintenance.

Notations used in this User's Guide

General information

Caution:	Indicates procedures where personal injury or damage to the projector may occur if the procedures are not followed correctly.
Tip:	Indicates additional information and points which may be useful to know regarding a topic.
☛	Indicates a page where useful information regarding a topic can be found.
⏩	Indicates that an explanation of the underlined word or words in front of this symbol appears in the glossary of terms. Refer to the "Glossary" in the "Appendix" ☛ page 49
On, M, etc.	Indicates buttons on the remote control or projector's control panel.
" (Menu Name) "	Indicates configuration menu items. Example: "Image"-"Color Mode"
[(Name)]	Indicates the port name of the projector. Example: [InputA]

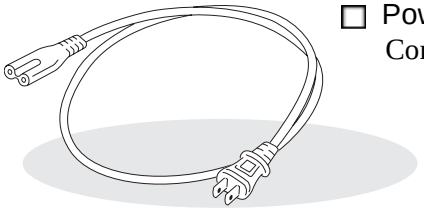
Meaning of "unit" and "projector"

When "unit" or "projector" appears in the text of this *User's Guide*, they may refer to items which are accessories or optional equipment in addition to the main projector unit itself.

Checking the Components

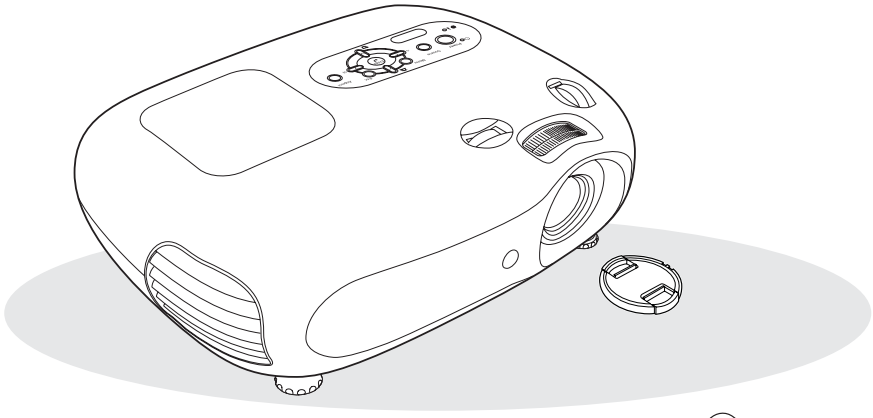
When you unpack the projector, make sure that you have all these components.

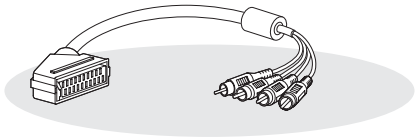
If any of the components are missing or incorrect, please contact the place of purchase.



☐ Power cable (1.8 m)
Connect to the projector and to a wall outlet.

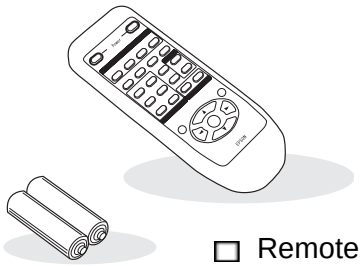
☐ Projector (with lens cover)





☐ RGB SCART adapter.
Use a commercially-available SCART cable to make the connections when projecting RGB-video and component video images.

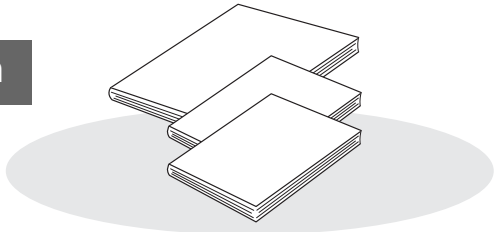
*Some regions may not have the RGB SCART adapter included as an accessory.



☐ Remote control

☐ AA manganese batteries (2 pcs.)
Insert into the remote control.

Documentation



☐ Safety Instructions/World-Wide Warranty Terms
☐ User's Guide
☐ Quick Start Guide

*Some regions may not have the quick start guide as documentation.

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Imag
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The optimu
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If "Natural
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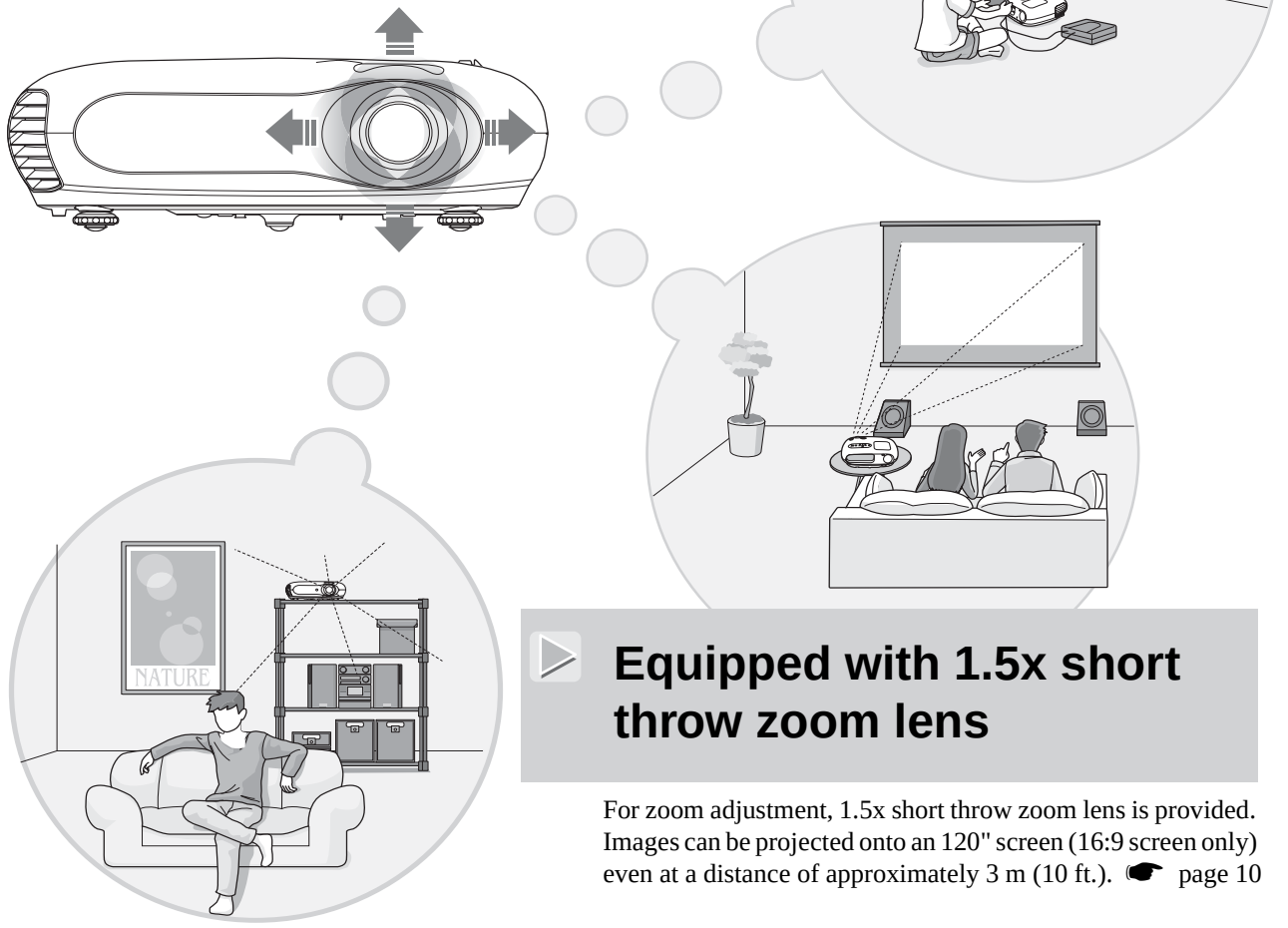
In addition to the "Color Mode", the "Color Temp." and "Skin Tone" can be adjusted by simple procedu
render the picture even more to your own liking. "Color Temp." can be adjusted to obtain "warm" or "cold"
for the entire picture's colours. The skin tones of people in the picture are adjusted to natural shades by the Eps
Cinema Filter, but can be further adjusted according to taste by means of the "Skin Tone" feature. ☛ page 20.

Equipped with a wide-angle lens shift function

The lens shift function allows the position of the projected images to be adjusted vertically and horizontally without distorting the images.
This can allow the projector to be set up with greater freedom, even if it is suspended from a ceiling or at an angle to the screen. ☛ page 16



Equipped with 1.5x short throw zoom lens

For zoom adjustment, 1.5x short throw zoom lens is provided. Images can be projected onto an 120" screen (16:9 screen only) even at a distance of approximately 3 m (10 ft.). ☛ page 10

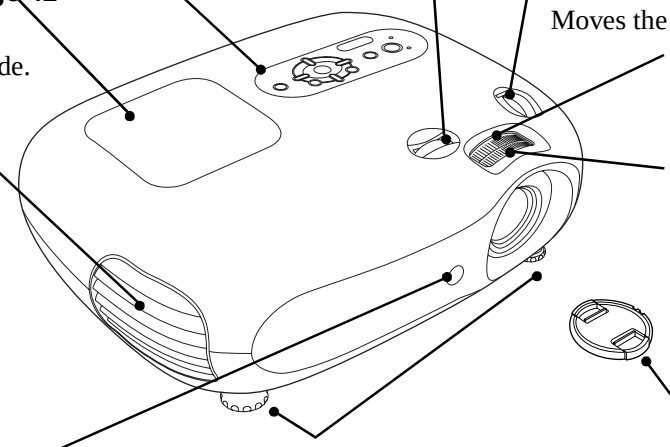
Comes with phosphorescent remote control

Comes with phosphorescent remote control whose buttons glow in the dark - convenient for enjoying movies in a darkened room. ☛ page 7

A variety of image setting functions

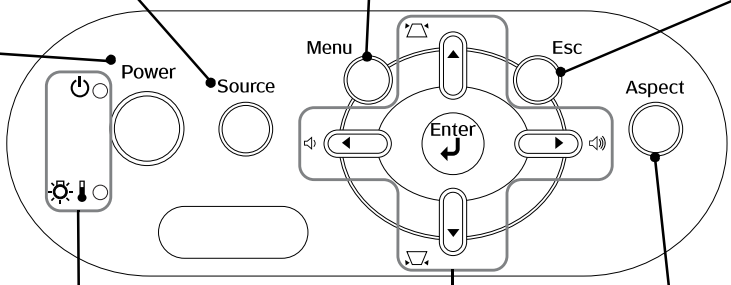
Some of the other many functions that are available are as follows.
A progressive conversion that lets you obtain ideal results both for images with large amounts of movement and for still images. ☛ page 27
- An aspect function that allows images to be viewed in wide-screen format. ☞ page 18
- Memory functions that allow adjustment results to be stored and later retrieved easily using the remote control. ☛ page 22
- "Child Lock" setting that can be used to prevent children from accidentally turning on the power and looking into the lens. ☛ page 29

Front / Top



- **Control panel** ☛ **See below**
- **Horizontal lens adjustment dial** ☛ **page 16**
  Moves the lens horizontally.
- **Vertical lens adjustment dial** ☛ **page 16**
  Moves the lens vertically.
- **Lamp cover** ☛ **page 42**
  Open this cover when replacing the lamp inside.
- **Zoom ring** ☛ **page 16**
  Adjusts the image size.
- **Air exhaust vent**
  Caution:
  Do not touch the exhaust vent immediately after projecting, or while projecting, since it becomes hot.
- **Focus ring** ☛ **page 16**
  Adjusts the image focus.
- **Lens cover**
  Attach when not using the projector to prevent the lens from becoming dirty or damaged.
- **Remote control light-receiving area** ☛ **page 13**
  Receives signals from the remote control.
- **Front adjustable feet** ☛ **page 16**
  Extend to adjust the projection angle so that the projector is horizontal when placed on a desk top.

Control panel



- **Source button** ☛ **page 15**
  Selects the image source.
- **Menu button** ☛ **page 32**
  Displays and closes the configuration menus.
- **Power button** ☛ **page 14**
  Turns the projector power on or off.
- **Esc button** ☛ **page 18, 20, 22, 32**
  Pressing [Esc] while viewing a configuration menu or selection menu displays the previous menu.
- **⏻ (Operation) indicator** ☛ **page 33**
  Flashes or lights in different colours to indicate the operating status of the projector.
- **☼ (Warning) indicator** ☛ **page 33**
  Flashes or lights in different colours to indicate problems with the projector.
- **Aspect button** ☛ **page 18**
  Selects the aspect.
- **Enter button** ☛ **page 18, 20, 22, 32**
  When viewing a configuration menu or selection menu, press this button to select the menu item and proceed to the next display.
- **▲ / ▼ buttons** ☛ **page 17, 18, 20, 22, 32**
  Used as up/down buttons to select items in configuration menus and select menus.
  If the above menus are not displayed, correct the keystone distortion.
- **◀/🔉 ▶/🔊 buttons** ☛ **page 17, 20, 32**
  Used as right/left buttons to select adjustment values in configuration menus.
  When the above menus are not displayed, these buttons adjust the audio volume.

Remote control

Buttons with no explanation function in the same way as the corresponding buttons on the projector's control panel. Refer to "Control panel" for further details on these buttons.

- **Remote control light-emitting area**

- **Still button**

  Pressing this button makes the picture stand still, and pressing it again restores the motion.

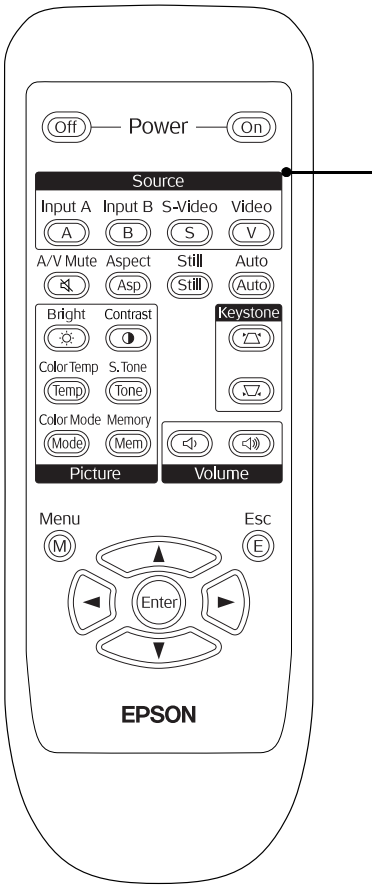
- **Aspect button** ☛ **page 18**

- **A/V Mute button**

  Pressing this button temporarily switches off the picture and the audio, and pressing it again restores them.

- **On/Off buttons** ☛ **page 14**

  Turns the projector power on / off.



- **InputA button**

  Switches the input source to the projector's [InputA] port.
  When you need to switch the input signal to match the equipment that is connected to the [InputA] port, select the correct signal using the selection menu. The change will be reflected in the "InputA" setting in the "Input Signal" menu.

- **InputB button**

  Switches the input source to the projector's [InputB] port.

- **S-Video button**

  Switches the input source to the projector's [S-Video] input port.

- **Video button**

  Switches the input source to the projector's [Video] input port.

- **Auto button** ☛ **page 27**

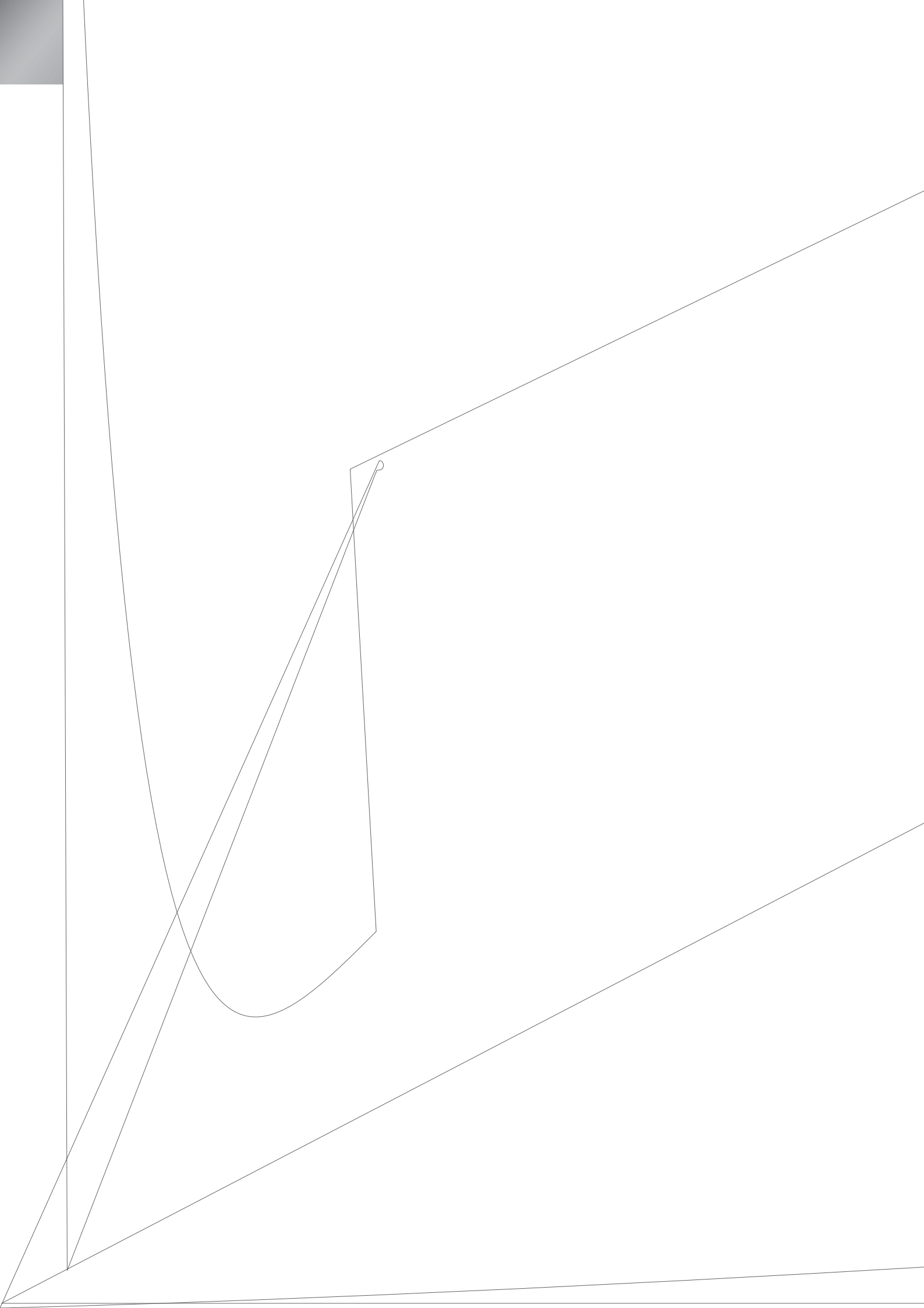
  Automatically adjusts RGB video images and analog RGB images from computers to the optimum images.

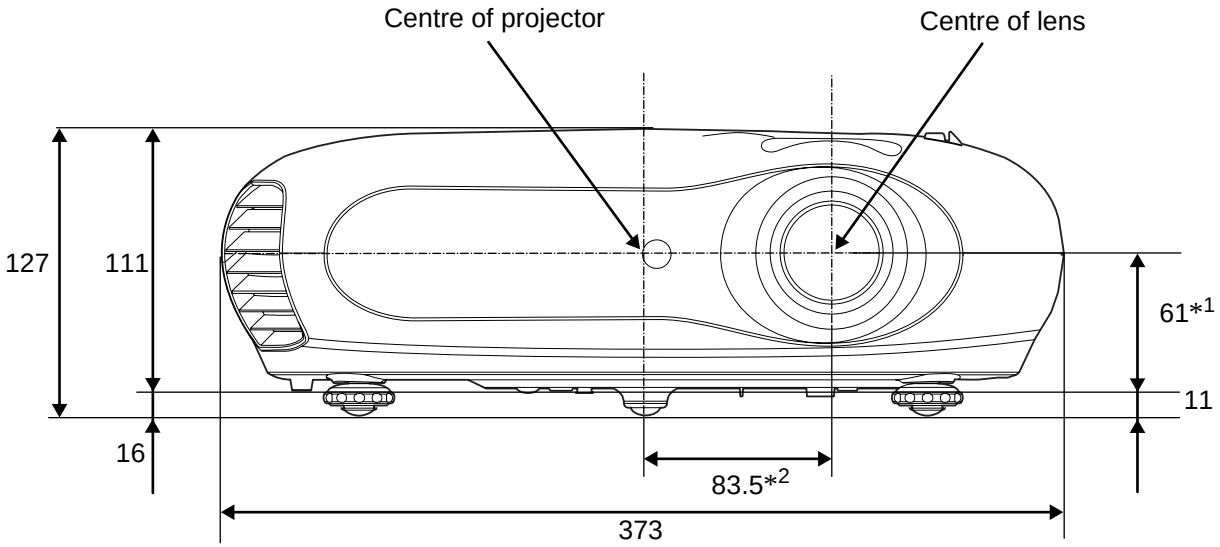
- **Volume button** ☛ **page 17**

  Adjusts the volume.

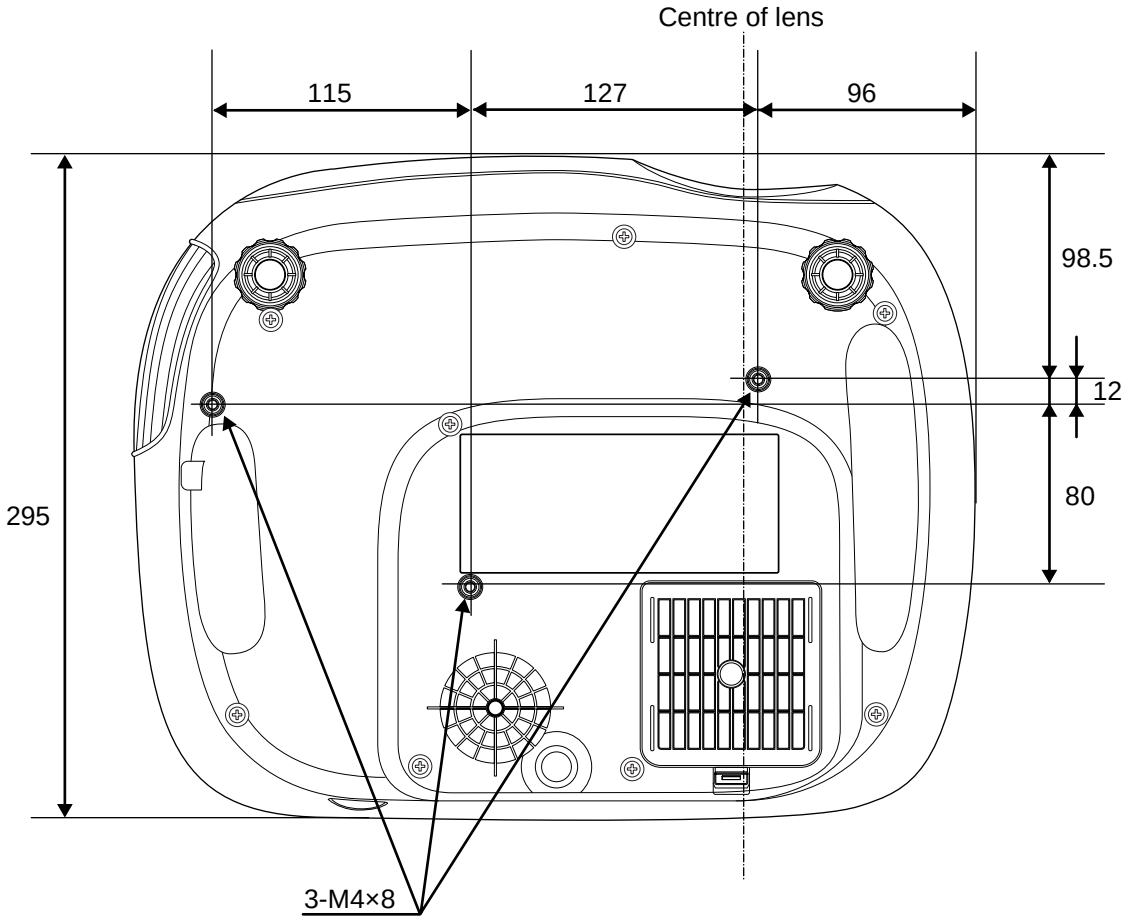
- **Esc button** ☛ **page 18, 20, 22, 32**

Tip: The buttons are phosphorescent. In sunlight or under electric lighting they accumulate light, and in the dark they glow.





*1 Distance from centre of lens to suspension bracket fixing point
(Lens shift amount: Max. 3.4 mm vertically)
*2 Distance from centre of lens to centre of projector
(Lens shift amount: Max. 3.0 mm horizontally)

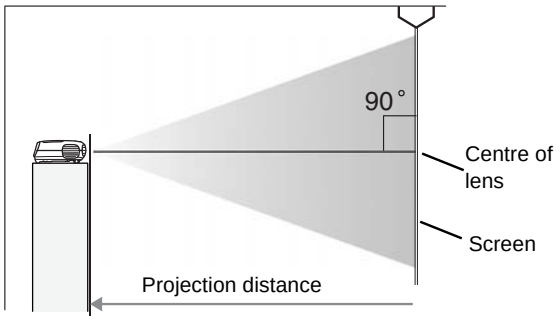


Units: mm

Adjusting the projection size

The size of the projected image is basically determined by the distance from the projector's lens to the screen.

Caution:
- Be sure to read the separate *Safety Instructions/World-Wide Warranty Terms* booklet before installing the projector.
- Do not stand this projector upright. This may damage your projector.



The height from the centre of the lens to the bottom of the screen will vary depending on the lens shift setting.

While referring to the table below, position the projector so that the images are projected onto the screen at the optimum size.
The values should be used as a guide for setting up the projector.

Units: cm (in) Units: cm (ft.)

16:9 sceen size		Projection distance	
		Shortest (Zoom adjustment: Wide)	Longest (Zoom adjustment: Tele)
30"	66×37 (26×15)	73-111 (2.4-3.7)	
40"	89×50 (35×20)	99-149 (3.2-4.9)	
60"	130×75 (51×28)	149-225 (4.9-7.4)	
80"	180×100 (71×39)	200-301 (6.6-9.9)	
100"	220×120 (87×47)	251-377 (8.2-12.4)	
120"	270×150 (106×59)	301-453 (9.9-14.9)	
150"	330×190 (130×75)	377-567 (12.4-18.6)	
200"	440×250 (173×98)	504-757 (16.5-24.8)	
300"	660×370 (260×146)	757-1137 (24.8-37.3)	

Units: cm (in) Units: cm (ft.)

4:3 sceen size		Projection distance	
		Shortest (Zoom adjustment: Wide)	Longest (Zoom adjustment: Tele)
30"	61×46 (24×18)	90-136 (2.9-4.5)	
40"	81×61 (32×24)	121-183 (4.0-6.0)	
60"	120×90 (47×35)	183-276 (6.0-9.0)	
80"	160×120 (63×47)	245-369 (8.0-12.1)	
100"	200×150 (79×59)	307-462 (10.1-15.2)	
120"	240×180 (94×71)	369-555 (12.1-18.2)	
150"	300×230 (118×91)	462-694 (15.1-22.8)	
200"	410×300 (161×118)	617-927 (20.2-30.4)	
300"	610×460 (240×181)	927-1392 (30.4-45.7)	

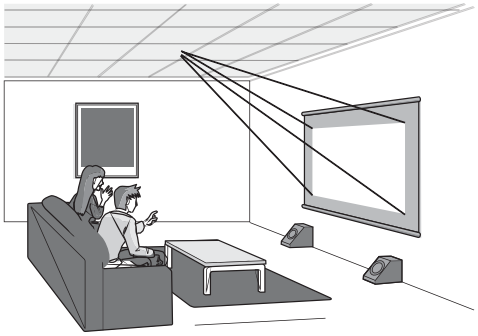
Lens shift adjustment

The lens shift dials can be used to position the image and is especially useful when using the projector in the following locations ☛ page 16.

•Hanging from the ceiling
•A screen in a high location
•Projector situated to the side so that the screen can be viewed sitting right in front of it
•Projector situated on a shelf, etc.

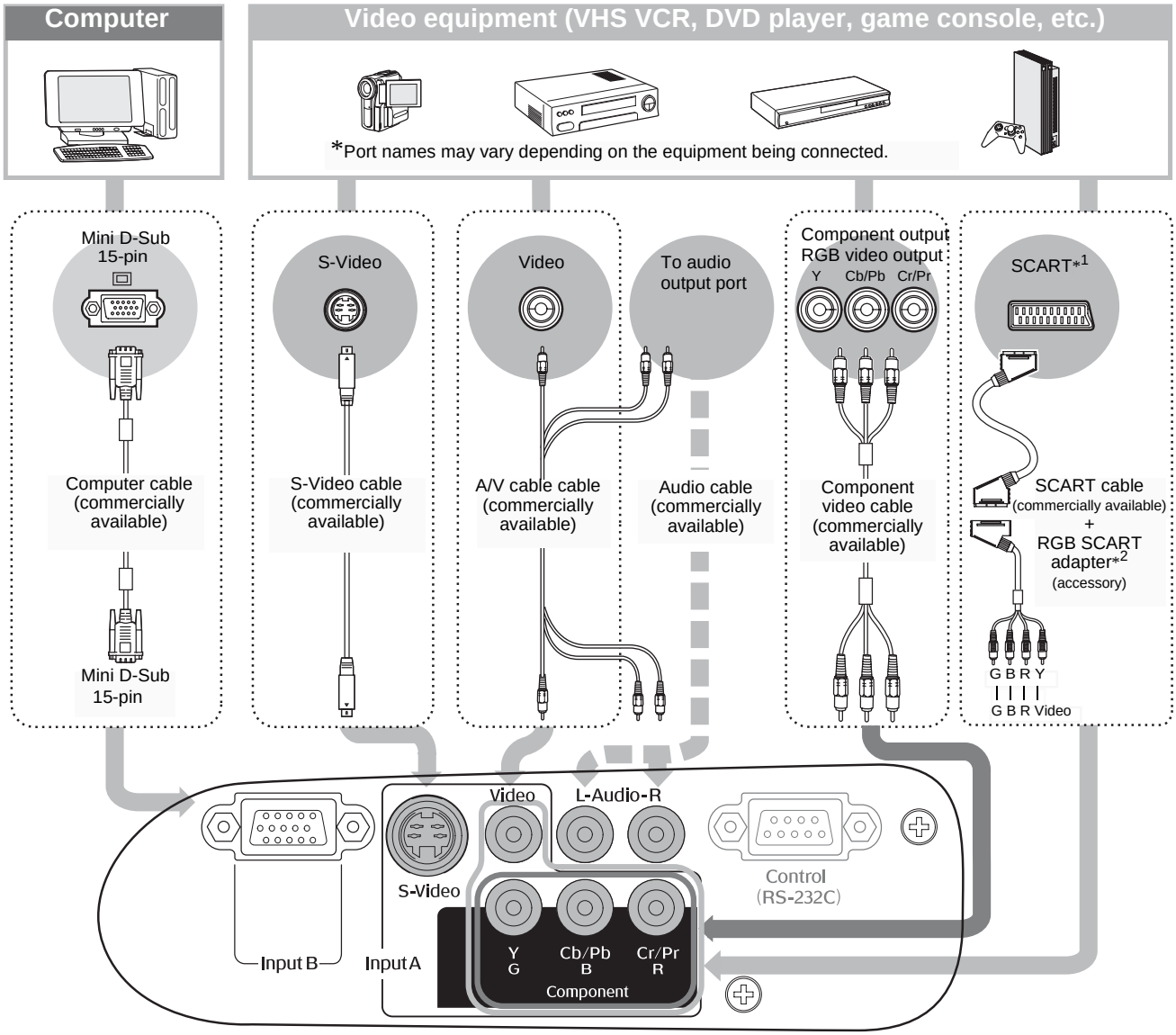
When positioning an image using the lens shift dial, hardly any deterioration of the image occurs because the lens shift correction is adjusted optically.

Projection methods



Connecting Image Sources

Caution:
- Turn the power off for both the projector and the signal source before connecting them. If the power for either device is on at the time of connection, damage may result.
- Check the shapes of the cable connectors and the device ports before making the connections. If you try to force a connector to fit a device port with a different shape or number of terminals, a malfunction or damage to the connector or port may result.



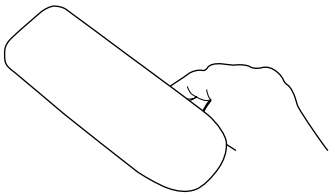
*1 If a DVD has been connected using an RGB SCART adapter, change the "InputA" setting to "RGB-Video". ☛ "Selecting the image source" page 15

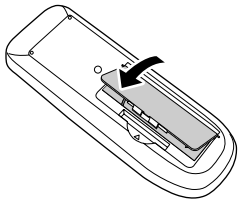
*2 Some regions may not have the RGB SCART adapter included as an accessory.

Tip:
- Some signal sources may have specially-shaped ports. In such cases, use the accessory or optional cables that are supplied with the signal source to make the connections.
- The cable that should be used to connect video equipment to the projector will depend on the type of video signal that the equipment outputs. Some kinds of video equipment output several different types of video signal. The image quality ranking of the video signal types is generally held to be as follows, in descending order of quality:
  Component video ▸▸ > S-Video ▸▸ > Composite video ▸▸
  You should refer to the documentation provided with the video equipment being used to check what types of video signal formats the equipment can output. The composite video format is sometimes simply called "video output".

Inserting batteries into the remote control

The remote control is not supplied with batteries already inserted. Insert the accessory batteries before using the remote control.





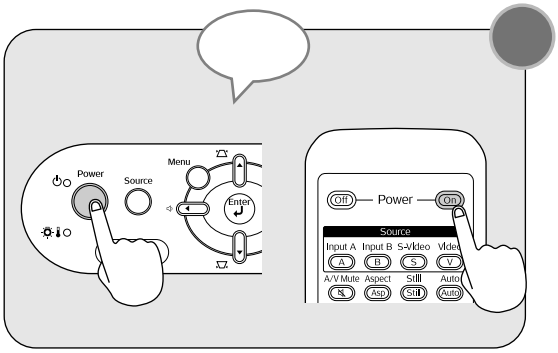
Battery replacement period

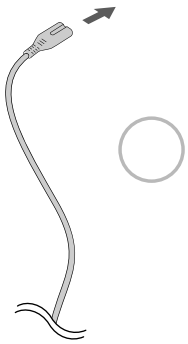
If delays in the responsiveness of the remote control occur or if it does not operate after it has been used for some time, it probably means that the batteries are becoming flat. If this happens, replace the batteries with two new batteries. Use two new AA batteries as replacement batteries.

Using the remote control

Operating range (horizontal)

Operating range (vertical)



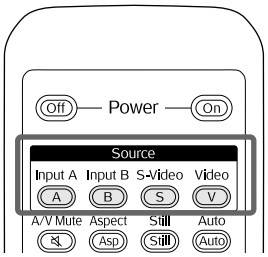


	Fn + F3
	Fn + F4
	Fn + F5
	Fn + F7
	Fn + F8
	Fn + F10

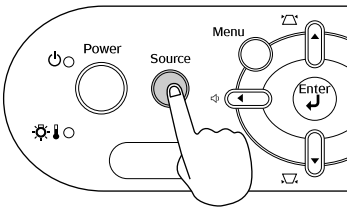
Selecting the image source

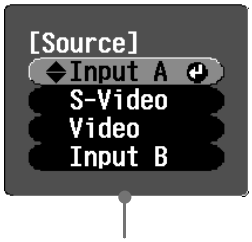
If more than one signal source has been connected, or if no images are projected, use the remote control or the projector's control panel buttons to select the signal source.

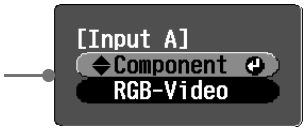
Using the remote control



Using the control panel

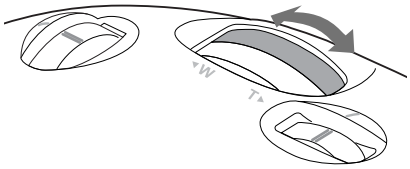


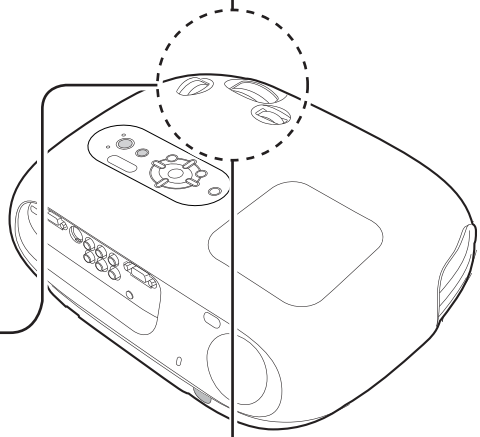




Focus adjustment

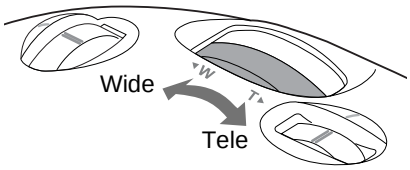
Turn the focus ring to adjust the focus.





Fine adjustments to image size (Zoom adjustment)

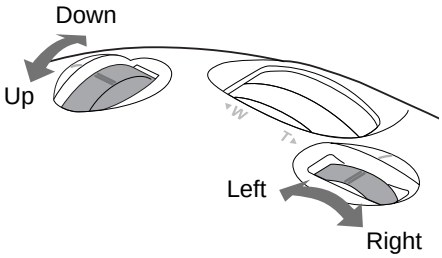
Turn the zoom ring to adjust the size of the projected image.



Projection image position adjustment (Lens shift)

Use the two lens shift dials to adjust the image position.

If you cannot position the projector straight in front of the screen, use the lens shift dial so that the image is centered on the screen.

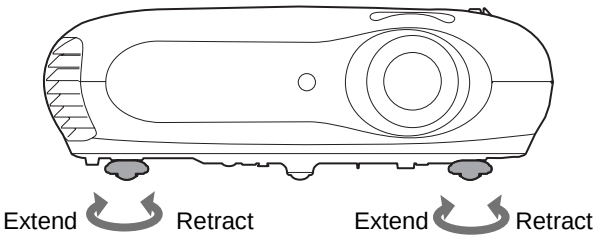


Tip:

- Lining up the marks on the shift dial and top surface brings the lens to the centre.
- If the lens shift dial becomes hard to turn further and the image position stops changing, no further adjustment is possible. ☛ page 10

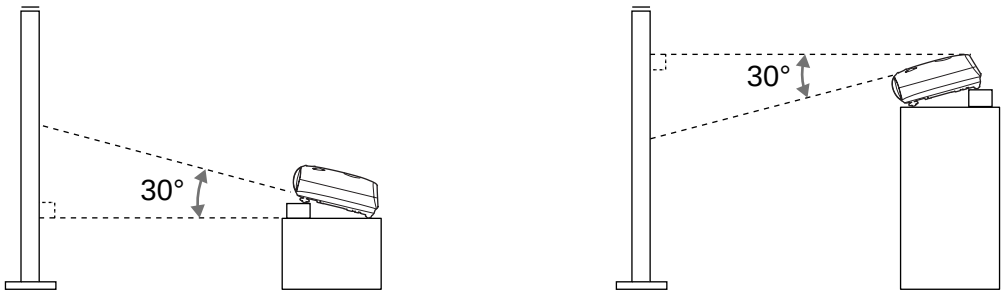
Correcting projector tilt

If the projected images are tilted horizontally, use the front adjustable feet to adjust the projector so that it is horizontal.



Correcting keystone distortion (Keystone)

When you wish to adjust the projection above or below the range of lens shift adjustment set the projector at an angle.
When the projector is angled, the projected image may distort into a trapezoid. In such cases, press ( ) ( ) on the control panel, or on the remote control to adjust the images.
However, the image quality will decrease compared to if the lens shift function is used.
When the lens is shifted to the left or right, complete keystone correction is not possible.
When making keystone corrections set the lens at the centre left to right.



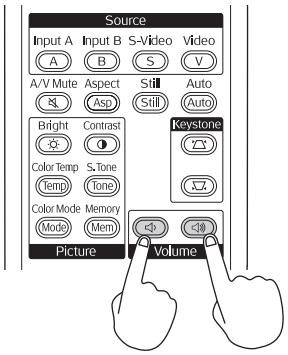
Keystone distortion can be corrected within a maximum vertical angle of approximately 30°.

Tip:
- You can also make adjustments from the configuration menu. ☛ page 28
- To reset the correction value, press and hold down with pressed down for at least 1 second on the control panel.

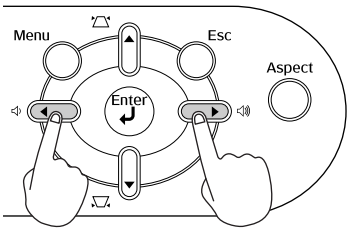
Adjusting the volume

The volume of the projector's built-in speaker can be adjusted as follows.

Remote control operation



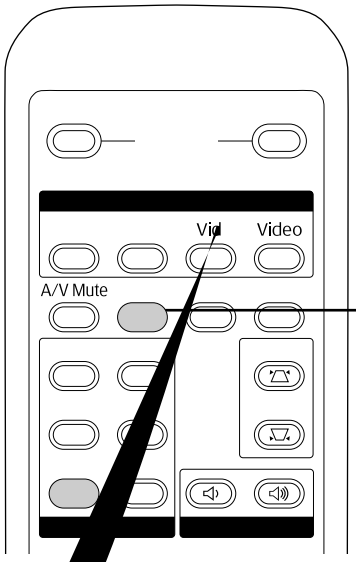
Control panel operation



When the button is pressed to the side, the volume increases, and when it is pressed to the side, the volume decreases.

Tip: You can also make adjustments from the configuration menu. ☛ page 30

Basic Image Quality Adjustments



Press Mode and select the colour mode from the six available modes in the selection menu in accordance with the place where the projector is being used.
Setting is also possible using the configuration menu.

Dynamic : Ideal for using in bright rooms.

Living Room : Ideal for using in rooms in which the curtains are closed.

Natural : Ideal for using in dark rooms. It is recommended that you start in this mode when making colour adjustments.

Theatre : Ideal for using in dark rooms.

Theatre Black 1 / **Theatre Black 2** : Suitable for use in a completely darkened room.

1: A clear tone of colour one might see in professional monitors used when creating DVD software.

2: A deep warm tone of colour that gives you the feeling of enjoying a movie at the theatre.

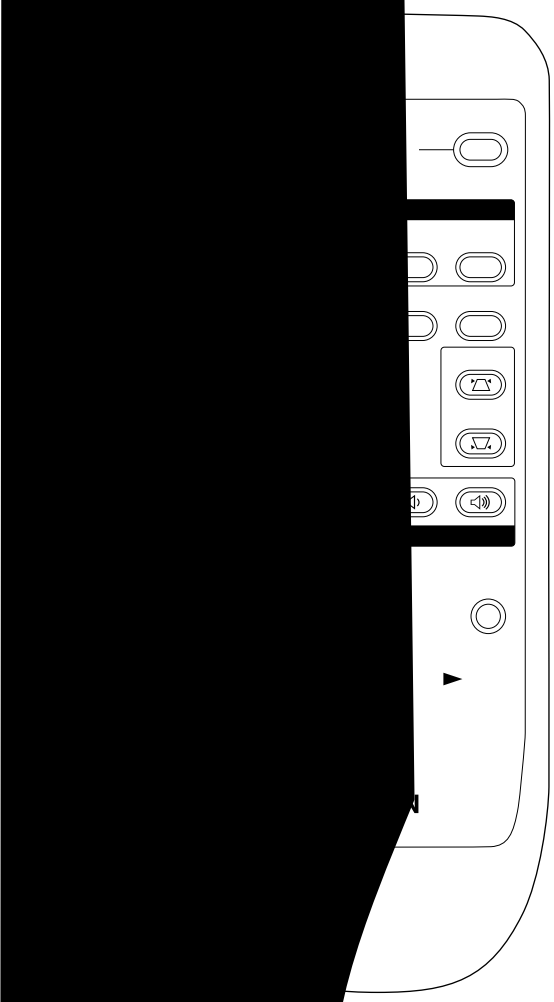
If "Natural", "Theatre", "Theatre Black 1" or "Theatre Black 2" is selected, the Epson Cinema Filter effect will be applied automatically. This increases contrast and makes skin tones appear more natural.

Press Asp and select the aspect mode from the selection menu.

Input signal	•Images from normal TV broadcasts •Images with standard aspect ratio (4:3) •Computer images	Images recorded by a video camera or DVD software in squeeze mode	Letterbox images such as from a DVD
Recommended aspect mode	Normal	Squeeze	Zoom
Result	 Black bands will appear at the left and right of the images.	 Input signals will be projected at the same width as the projector's panel resolution.	 Input signals will be projected at the same height as the projector's panel resolution.
Remarks	When HDTV images are projected, the images appear in 16:9 size. 	If 4:3 images are projected, the images will be elongated horizontally. 	•If 4:3 images are projected, the top and bottom of the images will be truncated. •If images with subtitles are projected and the subtitles are truncated, use the "Zoom Caption" menu command to adjust. ☛ page 28

ed Colour Adjustments

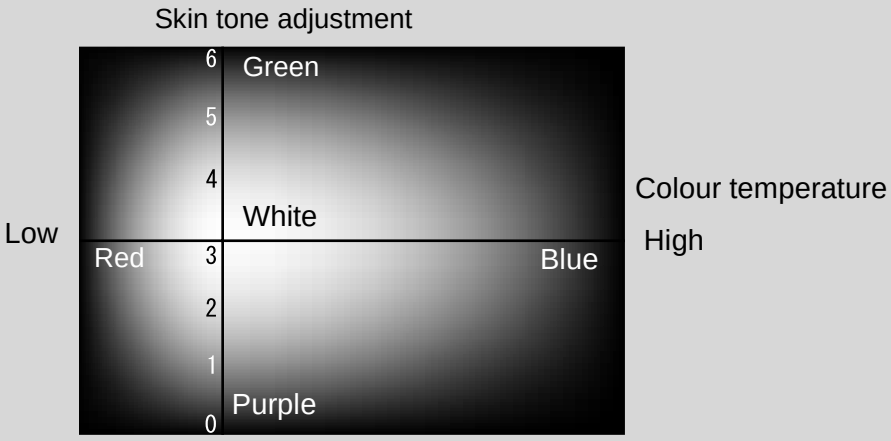
s you to select the optimum colour settings for the images being projected by selecting the
node.
e even more to your own liking, adjust the "Color Temp." and "Skin Tone".
s can be stored in the memory so that you can retrieve them and apply them to the
any time ☛ page 22



This can be used to adjust the skin tones for images of people.
The Epson Cinema Filter effect that is automatically applied to images when a "Color Mode" setting is made creates natural-looking skin tones. If you would like to further enhance skin tones, use this "Skin Tone" setting to make the adjustment.
If set to the + side, the colours become greenish, and if set to the – side, the colours become reddish.

You can adjust the overall tint of images.
If you select "High", images appear bluish, and if you select "Low", images appear reddish.
Select one of three levels: "High", "Medium" or "Low".

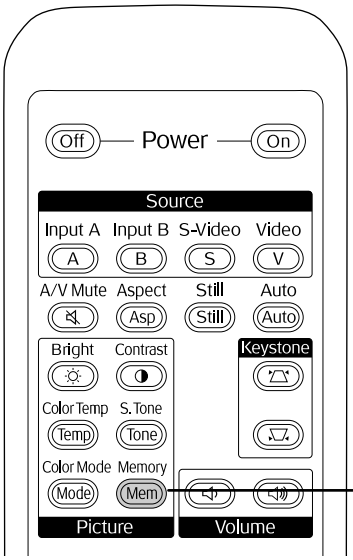
Colour temperature/skin tone adjustment



Viewing Images at a Preset Image Quality (Memory Function)

After menu commands such as "Picture Quality" and "Screen" have been used to adjust the projected images, the adjustment values can then be saved.

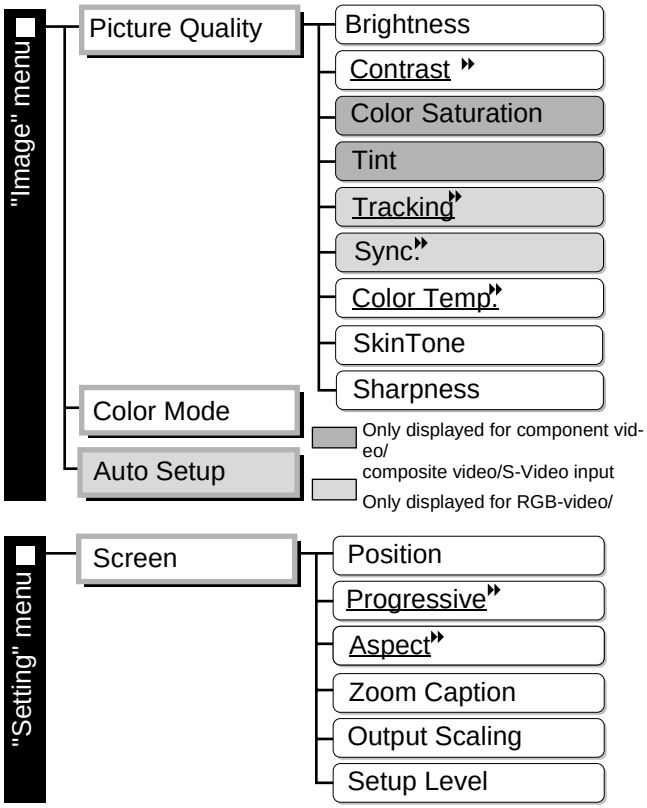
In addition, the saved data can be retrieved easily, so that you can enjoy viewing images with the adjusted settings at any time.



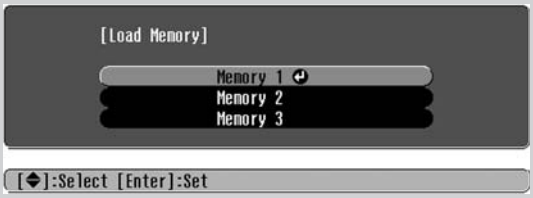
Saving image quality adjustments (Memory save)

Settings that can be saved in memory

- Configuration menus ☛ page 24



Selection menu operations



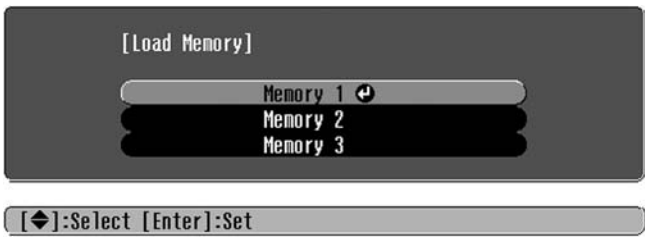
Press ◁ or ▷ on the remote control or ⊖ or ⊕ on the projector's control panel to select an item.

Press ⊙ or ⊙ to confirm the selection.

* If you press Ⓔ, the selection menu disappears.

Select an item to move to the next menu level for that item.

Retrieving image quality adjustments (Memory retrieve)



This can be used to save adjusted values for all of the configuration menu items on the left.
The "Save Memory" command in the "Image" menu is used to save the settings.

The following describes how to save settings.

1. Adjust the desired settings that you would like to save in memory.
2. Select "Save Memory" from the "Image" menu and then press .
3. Select a memory name from Memory1 to Memory 3 to use for saving and then press .
   The status of a memory area is indicated by the colour of the symbol to the left of the memory name as follows.
   Green : Memory area is in use Grey : Memory area is not in use Orange : Selected
   If you select a memory area that is already in use and press , the existing contents will be erased and the current settings will be saved in their place.

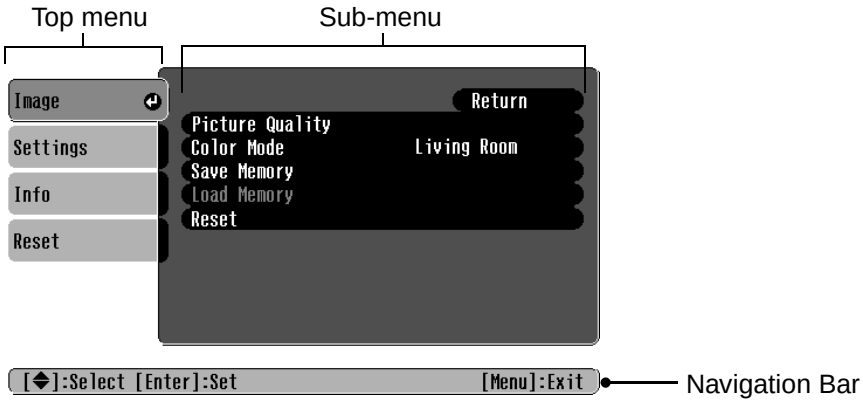
   To erase all memory contents, select "Memory Reset" from the "Reset" menu. ☛ page 31

You can press Mem and select the desired memory name from the selection menu.

Tip:
- Memory settings that have been applied to images will be retained even when the projector's power is turned off. The same memory adjustment settings will be applied to images that are projected the next time the projector's power is turned on.
- The aspect setting retrieved from memory may not be applied to the images if they are 16:9 images or if the input signal images have a particular resolution.

Configuration Menu Functions

The configuration menus can be used to make a variety of adjustments and settings involving the screen, image quality and input signals.

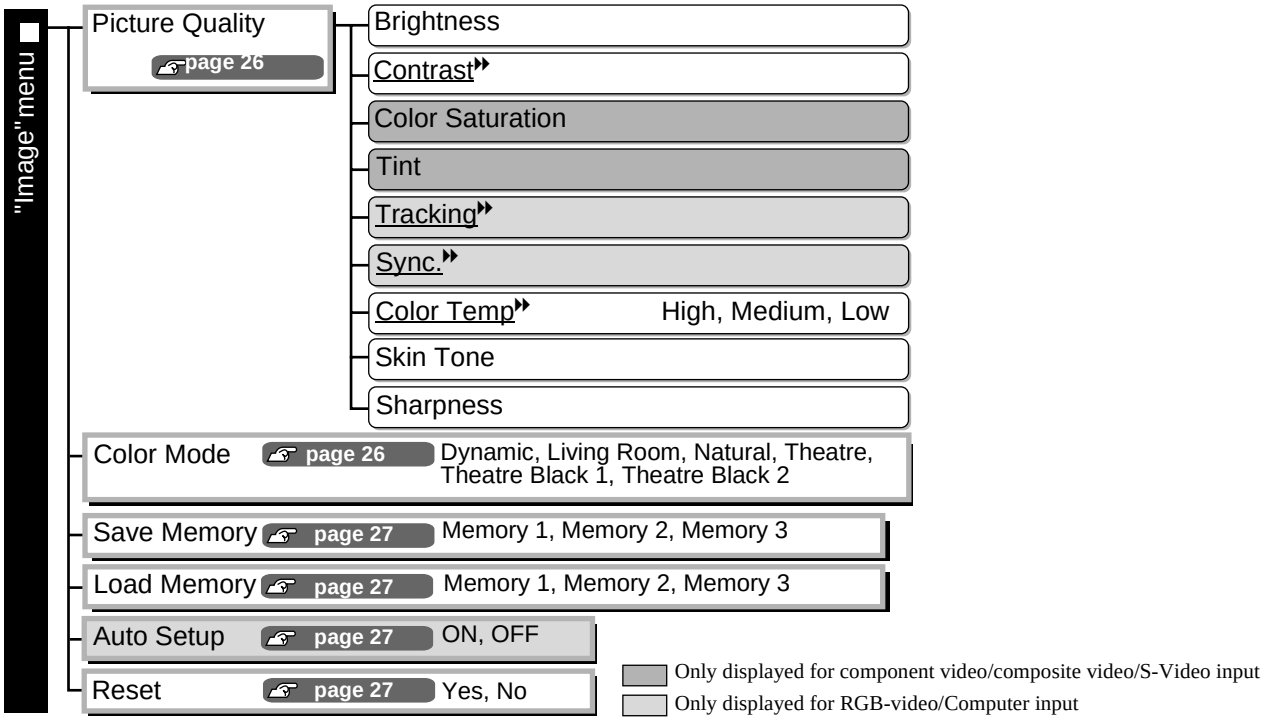


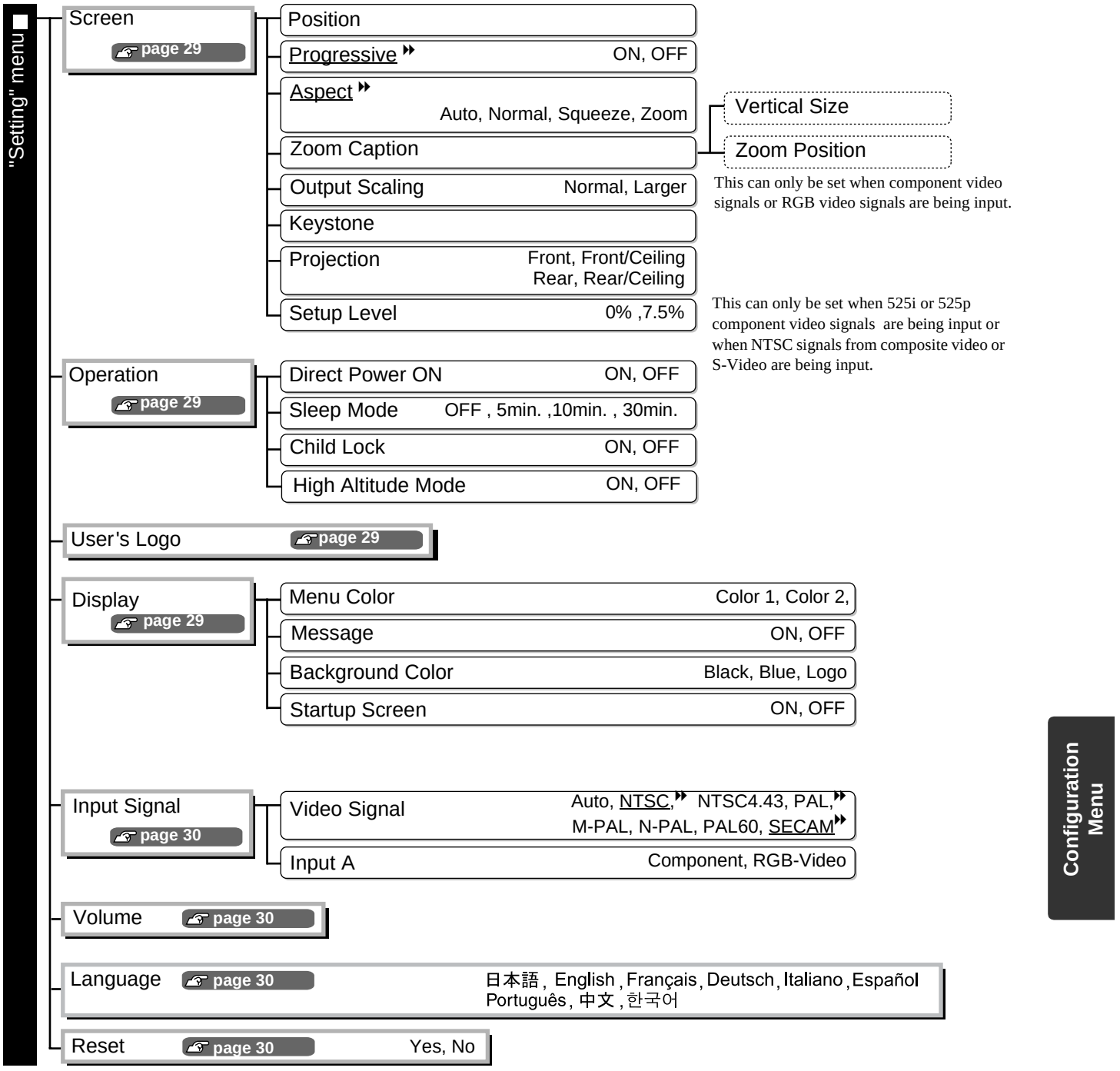
Refer to "Using the configuration menus" (☞ page 32) for details on menu operations.

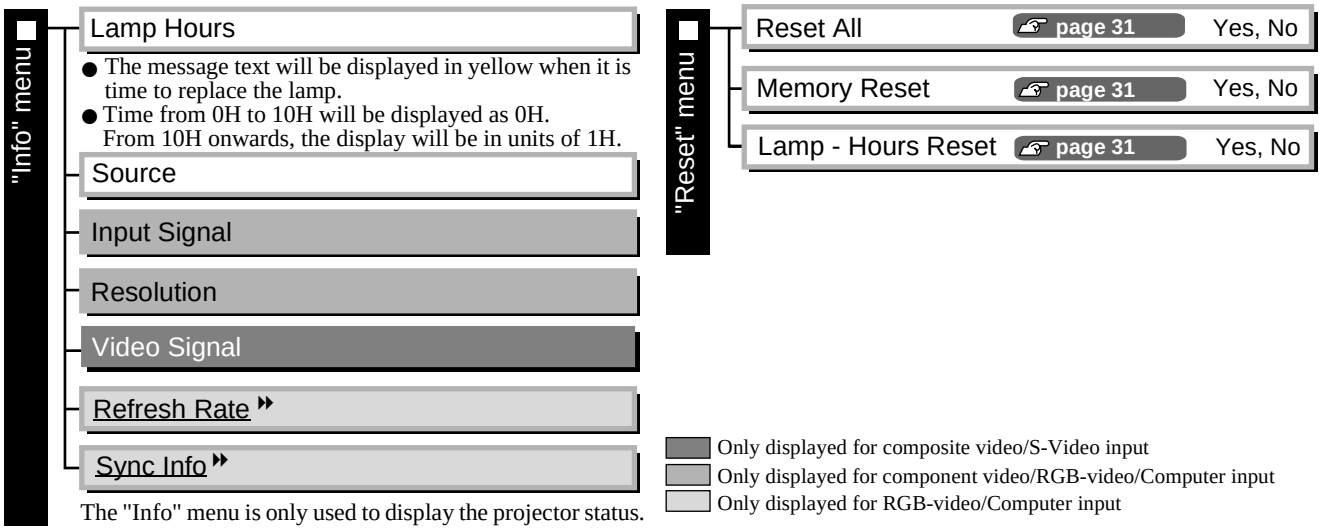
Tip: The configuration menus can be used to change the colour pattern.
☞ "Setting" - "Display" - "Menu Color"

List of configuration menus

If no image signals are being input, none of the settings can be adjusted except for "Auto Setup" in the "Image" menu. The items displayed in the "Image" menu and the "Info" menu will vary depending on the type of image signals that are being projected.




"Setting" menu
Screen
page 29
Position
Progressive ON, OFF
Aspect Auto, Normal, Squeeze, Zoom
Zoom Caption
Vertical Size
Zoom Position
This can only be set when component video signals or RGB video signals are being input.
Output Scaling Normal, Larger
Keystone
Projection Front, Front/Ceiling Rear, Rear/Ceiling
Setup Level 0% ,7.5%
This can only be set when 525i or 525p component video signals are being input or when NTSC signals from composite video or S-Video are being input.
Operation
page 29
Direct Power ON ON, OFF
Sleep Mode OFF , 5min. ,10min. , 30min.
Child Lock ON, OFF
High Altitude Mode ON, OFF
User's Logo page 29
Display
page 29
Menu Color Color 1, Color 2,
Message ON, OFF
Background Color Black, Blue, Logo
Startup Screen ON, OFF
Input Signal
page 30
Video Signal Auto, NTSC, NTSC4.43, PAL, M-PAL, N-PAL, PAL60, SECAM
Input A Component, RGB-Video
Volume page 30
Language page 30 日本語 , English , Français , Deutsch , Italiano , Español Português , 中文 , 한국어
Reset page 30 Yes, No


"Info" menu
Lamp Hours
● The message text will be displayed in yellow when it is time to replace the lamp.
● Time from 0H to 10H will be displayed as 0H. From 10H onwards, the display will be in units of 1H.
Source
Input Signal
Resolution
Video Signal
Refresh Rate
Sync Info
The "Info" menu is only used to display the projector status.
"Reset" menu
Reset All page 31 Yes, No
Memory Reset page 31 Yes, No
Lamp - Hours Reset page 31 Yes, No
Only displayed for composite video/S-Video input
Only displayed for component video/RGB-video/Computer input
Only displayed for RGB-video/Computer input

"Image" menu

Only displayed for component video/composite video/S-Video input
Only displayed for RGB-video/Computer input

Picture Quality

Brightness *1

The brightness of the images can be adjusted.
If projecting in dark rooms or onto small screens and the images appear too bright, decrease the setting.

Contrast *1

Adjusts the difference between bright and dark areas.
When the contrast is increased, images with greater modulation are obtained.

Color Saturation *1

This adjusts the colour intensity for the images.

Tint *1

(Adjustment is only possible when composite video▸▸ and S-Video▸▸ signals in NTSC▸▸ format are being input.)
This adjusts the image tint.

Tracking▸▸ *1

This adjusts the images if vertical stripes appear in the images.

Sync.▸▸ *1

This adjusts the images if flickering, fuzziness or interference appear in the images.

- Flickering and fuzziness may also appear in images when the brightness, contrast, sharpness and keystone correction settings are adjusted.
- Clearer adjustments can be obtained if you adjust the "Tracking" first and then adjust the "Sync".

Color Temp.▸▸ *2

The colour temperature can be selected from three settings in order to adjust the overall tint of the images.
☛ page 20

Skin Tone *2

This adjusts the skin tones of people who appear in the images. ☛ page 20

Sharpness *1

This adjusts the image sharpness.

Color Mode *1

The Color Mode can be selected from six different settings in accordance with the images being projected.
☛ page 18

*1 The setting values are stored separately for each image source and signal type.
*2 The setting values are stored separately for each image source and colour mode setting.

Only displayed for RGB-video/Computer

Save Memory

This can be used to save the current configuration menu settings. ☛ page 22

Load Memory *1

This retrieves settings stored in the memory. ☛ page 22

Auto Setup *1

This sets automatic adjustment to on or off in order to set whether the projector automatically adjusts images to their optimum condition when the input signal is changed. The three automatically adjusted items are "Tracking", "Position" and "Sync."

Reset

This returns all settings in the "Image" menu to their default settings, except for the settings that have been saved using the "Save Memory" command. The "Save Memory" settings can be reset using the "Memory Reset" menu. ☞ page 31

"Setting" menu

Screen

Position *1

Use ▲, ►, ▼ or ◄ to move the display position for images.

Progressive *1

(This can only be set when composite video or S-Video signals are being input or when 525i/625i signals from component video or RGB video are being input.)

- OFF :Conversion of interlaced (i) signals to progressive (p) signals is carried out for each field in the screen. This is ideal for using when viewing images with a large amount of movement.
- ON :Interlaced (i) signals are converted into progressive (p) signals. This is ideal for using when viewing still images.

Aspect *1

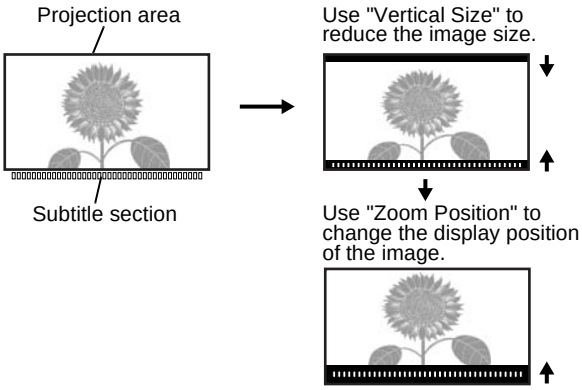
Selects the aspect mode. ☛ page 18

*1 The setting values are stored separately for each image source and signal type.

Zoom Caption *1

If "Aspect" is set to "Zoom" when viewing images with subtitles, change the setting as follows so that the subtitles are visible. The vertical size and the display position can both be adjusted together.

- Vertical Size
  The vertical size of the image is reduced so that the subtitles are displayed.
- Zoom Position
  The whole of the image is moved up so that the subtitles are displayed.


Projection area
Subtitle section
Use "Vertical Size" to reduce the image size.
Use "Zoom Position" to change the display position of the image.

Output Scaling *1

During input of component video or RGB-video signals only, this permits alteration of the output scaling (extent of the image projected).

Normal (92% display) :Input signals are projected at the normal image size. TV images are displayed at 92% size.

Larger :Component video and RGB-video images are displayed at 100% size.
The areas at the top, bottom and sides of images that cannot normally be seen are inserted and projected. Interference may occur at the top, bottom and sides of the images depending on the image signal. In such cases, try to adjust the display position. ☛ page 27

Keystone

This is used to correct keystone distortion in images. The same correction can be carried out using the projector's control panel. ☛ page 17

Projection

This should be set in accordance with the method used to set up the projector.

- Front : Select when the projector is set up in front of the screen.
- Front/Ceiling : Select when the projector is set up in front of the screen and suspended from a ceiling.
- Rear : Select when the projector is set up behind the screen.
- Rear/Ceiling : Select when the projector is set up behind the screen and suspended from a ceiling.

Setup Level *1

(This can only be set when NTSC signals from composite video or S-Video are being input or when 525i/525p component video signals are being input.)
If using products designed for destinations such as South Korea that have different black level (setup level) settings, use this function to obtain correct images. Check the specifications of the connected equipment when changing this setting.

Operation

Direct Power ON

Sets whether "Direct Power ON" is enabled ("ON") or disabled ("OFF").
When you set to "ON" and leave the power cable connected to a wall socket, be aware of that sudden surges of electricity that may occur when power comes back on after a power outage may cause the projector to turn on automatically.

*1 The setting values are stored separately for each image source and signal type.

Sleep Mode

The projector is equipped with a power-saving function that causes the power to turn off automatically and the projector to switch to standby if no signal is input to the projector for a continuous length of time. The length of time before the power-saving function operates can be selected from four available settings. If "OFF" is selected, the power-saving function will not operate.
If you press (On) while the projector is in standby mode, projection will start again.

Child Lock

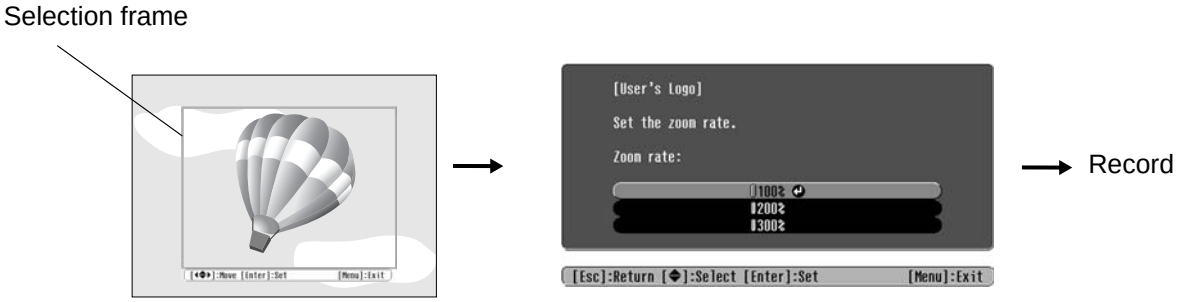
This locks the power on function of the Power button on the projector's control panel, so that a child cannot accidentally turn the projector's power on and look into the projector's lens.
When the lock is applied, the power will only turn on if Power is pressed down for about 3 seconds. Power can be used to turn off the power, and the remote control will continue to operate as normal.
The remote control operation is unaffected by this setting.
If you change the setting, the new setting will take effect after the power has been turned off and the cool-down period is complete.

High Altitude Mode

A fan is set at a certain speed of rotation so as to bring down internal temperature.
When using above an altitude of about 1500m, set to "ON".

User's Logo

You can record your favorite image as a user's logo.
The logo will be projected when projection starts and when the A/V mute is set. When a user's logo is recorded, the previous user's logo will be erased. Follow the instructions on the screen to record a user 's logo.



Move the selection frame so that the area of the image to be recorded is inside the frame.

Select the display ratio.

- The image will be displayed in dot format while the selection frame is displayed, therefore the display size may change.
- The size of the recorded image is 400 × 300 dots.
- Once a user's logo has been recorded, you cannot return the logo to the default setting.
- To use the recorded user's logo, set "Background Color" to "Logo".

Display

Menu Color

Selects the colour for the main configuration menu and the navigation bar.

- Color 1:Purple
- Color 2:Black

Message

This sets whether the following message displays appear (ON) or don't appear (OFF).

- Image signal, colour mode, aspect and item name when memory settings are retrieved
- Messages such as when no image signals are being input, when an incompatible signal is input, and when the internal temperature rises

Background Color

Displays a menu for selecting the screen status for when the A/V mute is set or when no image signal is input.

Startup Screen

This sets whether the start-up screen (the image that is projected when projection starts) is displayed (ON) or not displayed (OFF).
If you change the setting, the new setting will take effect after the power has been turned off and the cool-down period is complete.

Input Signal

Video Signal

Sets the signal format in accordance with the video equipment that is connected to the [Video] or [S-Video] input port. If set to "Auto", the video signal format is set automatically.
If there is a lot of interference in the image, or if a problem such as no image being projected occurs even though "Auto" has been selected, select the correct signal format manually.

Input A

Change this setting depending on the type of signal that is being output from the video equipment that is connected to the [InputA] port.

Volume

Adjusts audio volume.

Language

This sets the display language for messages and menus.

Reset

This returns all settings in the "Setting" menu to their default settings, except for the "Aspect", "Child Lock", "High Altitude Mode", "InputA" and "Language" settings.

"Reset" menu

Reset All

This resets all configuration menu settings to their default settings. The "Child Lock", "InputA", "Language" and "Lamp Hours" settings will not be reset.

Memory Reset

This resets (erases) all settings that have been made using the "Save Memory".

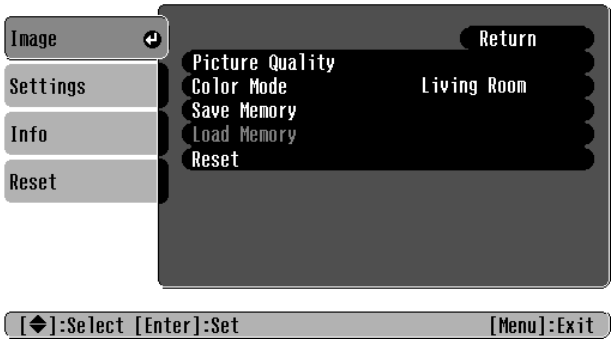
Lamp-Hours Reset

This initialises the lamp operating time. When this command is selected, the cumulative operating time for the lamp is cleared and returned to the default setting.

Using the configuration menus

1 Displaying a menu

Press (M).



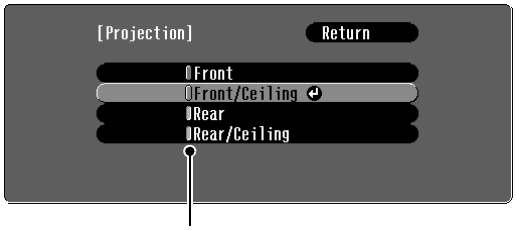
2 Selecting a menu item

Use ▲ or ▼ to select a menu item, then press (Enter).

3 Changing settings

Example:

Use ◄ or ► to adjust values.



(green): Current setting value
(orange): Currently-selected item

Use ▲ or ▼ to select an item, then press (Enter).

If you press (Enter) when an item with ↵ next to it is selected, the selection screen for that item will be displayed.

To return to a previous display, press (E). Alternatively, select [Return] and then press (Enter).

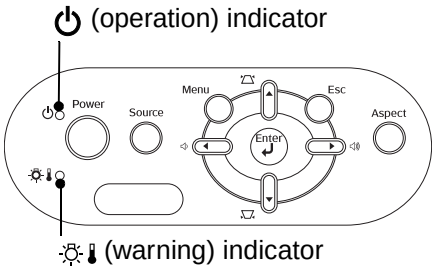
4 When setting is complete

Press (M).

Reading the indicators

The projector is provided with the following two indicators which notify you of the operating status of the projector.
The following tables show what the indicators mean and how to remedy the problems that they indicate.

* If both indicators are switched off, check that the power cable is connected correctly and that power is being supplied.



When the (warning) indicator is lit or flashing warning/problem

● : Lit ☼ : Flashing

Red (Lit/off for 1 sec)

Internal problem / Fan problem / Sensor problem

CAUTION Disconnect the power cable from the electrical outlet. Then contact your dealer or the nearest address provided in the "International Warranty Conditions" section of the *Safety Instructions/World-Wide Warranty Terms* booklet.

Red (Lit/off for 0.5 sec)

Lamp problem / Lamp on error

Check if the lamp is broken. ☛ page 42

If the lamp is not broken → Replace the lamp and then turn the power on. → If the problem is still not solved after the lamp is replaced, stop using the projector and disconnect the power cable from the electrical outlet. Then contact your dealer or the nearest address provided in the "International Warranty Conditions" section of the *Safety Instructions/World Wide Warranty Terms* booklet.

If the lamp is broken → Contact your local dealer for further advice.

Red ●

High internal temperature (overheating)

The lamp will switch off automatically and projection will stop. Wait for approximately 5 minutes.

High-speed cooling in progress

You can continue using the projector, but if the temperature rises again, it will switch off automatically.

When the (operation) indicator is lit or flashing

When the (warning) indicator is off : Lit : Flashing

	Standby condition	If you press , projection will start after a brief interval.
	Warm-up in progress	Warm-up time is approximately 30 seconds. Power off operations are ignored while warm-up is in progress.
	Projection in progress	Normal operation is in progress.
	Cool-down in progress	Cool-down time is approximately 20 seconds. After cool-down is complete, the projector goes to standby mode. You cannot use the remote control or the projector's control panel during cool-down.

When the indicators provide no help

If any of the following problems occur and the indicators do not offer a solution, refer to the pages given for each problem.

Problems relating to images

- No images appear ☛ See below
  Projection does not start, the projection area is completely black, the projection area is completely blue, etc.
- The message "Not Supported." is displayed ☞ page 35
- The message "No Signal." is displayed ☛ page 35
- Images are fuzzy or out of focus ☛ page 36
- Interference or distortion appear in images ☛ page 36
  Problems such as interference, distortion or black & white checked patterns appear.
- Image is truncated (large) or small ☛ page 37
  Only part of the image is displayed.
- Image colours are not right ☛ page 37
  The whole image appears purplish or greenish, images are black & white, colours appear dull, etc.
  (Computer monitors and LCD screens have different colour reproduction performance, so that the colours projected by the projector and the colours appearing on the monitor may not necessarily match, but this is not a sign of a problem.)
- Images appear dark ☛ page 38
- Projection stops automatically ☛ page 38

Problems when projection starts

- Power does not turn on ☛ page 38

Other problems

- No sound can be heard or the sound is faint ☛ page 38
- The remote control does not work ☛ page 39

Problems relating to images

■ No images appear

Have you pressed the [Power] button?	Press (On) on the remote control or (Power) on the projector's control panel.
Are all of the indicators switched off?	Disconnect the power cable and then reconnect it. ☛ page 14 Check the circuit breaker to see if power is being supplied.
Is A/V Mute mode active?	Press (A/V Mute) on the remote control to cancel the A/V mute.
Is a video signal being input?	Check that the power for the connected equipment is turned on. If the "Message" menu command has been set to "ON", messages relating to the image signals will be displayed. ☛ "Setting" - "Display" - "Message" page 30
Are the image signal format settings correct?	If a composite video or S-Video signal is being input If projection does not occur when the "Video Signal" menu command is set to "Auto", select the signal format that matches the signal source. ☛ "Setting" - "Input Signal" - "Video Signal" page 30

Are the image signal format settings correct?	If the signal source is connected to the [InputA] port Use the "Input Signal" menu command to set the signal format that matches the signal that is being projected from the connected equipment. ☛ "Setting" - "Input Signal" - "Input A" page 30 You can also press (A) on the remote control to select the format. ☛ page 15
	If the VCR or DVD equipment is connected using an RGB SCART adapter Press (A) to set the signal format to "RGB-Video". ☛ page 15 When still no images appear and the DVD equipment is connected, change the setting at the DVD equipment to RGB output.
Have the configuration menu settings been made correctly?	Try resetting all of the current settings. ☛ page 31
Were the projector and computer connected while their power was already turned on? **When a computer is connected**	If the connection is made while the power is already turned on, the function (Fn) key that switches the computer's video signal to external output may not work. Turn the power for the computer that is connected to the projector off and then back on again.
Is the computer display output set to only the computer's accessory screen? **When a computer is connected**	The image signals need to be output externally. Change the output setting to an external destination only or to an external destination as well as the computer's own monitor. ☛ Computer documentation, under a title such as "External output" or "Connecting an external monitor"

■ The message "Not Supported." is displayed

Are the image signal format settings correct?	If a composite video or S-Video signal is being input If projection does not occur when the "Video Signal" menu command is set to "Auto", select the signal format that matches the signal source. ☛ "Setting" - "Input Signal" - "Video Signal" page 30
	If the signal source is connected to the [InputA] port Use the "Input Signal" menu command to set the signal format that matches the signal that is being projected from the connected equipment. ☛ "Setting" - "Input Signal" - "Input A" page 30 You can also press (A) on the remote control to select the format. ☛ page 15
Does the mode match the frequency and resolution of the image signals? **Only when projecting computer images**	Use the "Resolution" menu command to check the signals being input, and check the "List of compatible signals" to make sure that the signals are compatible. ☛ "Info" - "Resolution" page 25 ☛ "List of Supported Monitor Displays" page 45

■ The message "No Signal." is displayed

Are the cables connected correctly?	Check that all of the cables required for projection are securely connected. ☛ page 12
Has the correct video input port been selected?	Press (A), (B), (S) or (V) on the remote control or Source on the projector's control panel to change the image source. ☛ page 15

Is the power for the connected equipment turned on?	Turn the power on for the devices.
Are the image signals being output to the projector? **Only when projecting images from a laptop computer or computer with a built-in LCD screen**	If the image signals are only being output to the computer's LCD monitor or to the accessory monitor, you need to change the output. For some computer models, when the image signals are output externally, they no longer appear on the LCD monitor or accessory monitor. ☛ Computer documentation, under a title such as "External output" or "Connecting an external monitor"
	If the connection is made while the power is already turned on, the function [Fn] key that switches the computer's video signal to external output may not work. Turn the power for the projector and the computer off and then back on again. ☛ page 14

■ Images are fuzzy or out of focus

Has the focus been adjusted correctly?	Adjust the focus. ☛ page 16
Is the lens cover still attached?	Remove the lens cover.
Is the projector at the correct distance?	The recommended distance from the projector to the screen is within 73–1137 cm (2.4–37.3 ft.) for a screen size of 16:9, and 90–1392 cm (2.9–45.7 ft.) for a screen size of 4:3. Set up the projector so that the projection distance is within this range. ☛ page 10
Is the keystone adjustment value too large?	Decrease the projection angle to reduce the amount of keystone correction. ☛ page 17
Has condensation formed on the lens?	If the projector is suddenly taken from a cold environment to a warm environment or if sudden ambient temperature changes occur, condensation may form on the surface of the lens, and this may cause the images to appear fuzzy. Set the projector up in the room approximately one hour before it is to be used. If condensation forms on the lens, turn the power off and wait for the condensation to disappear.

■ Interference or distortion appear in images

Are the image signal format settings correct?	If a composite video or S-Video signal is being input If projection does not occur when the "Video Signal" menu command is set to "Auto", select the signal format that matches the signal source. ☛ "Setting" - "Input Signal" - "Video Signal" page 30
	If the signal source is connected to the [InputA] port Use the "Input Signal" menu command to set the signal format that matches the signal that is being projected from the connected equipment. ☛ "Setting" - "Input Signal" - "Input A" page 30 You can also press (A) on the remote control to select the format. ☛ page 15
Are the cables connected correctly?	Check that all of the cables required for projection are securely connected. ☛ page 12
Is an extension cable being used?	If an extension cable is used, interference may increase. Try connecting a signal amplifier.

Have the "Sync." and "Tracking" settings been adjusted correctly? **Computer and RGB video signals only**	The projector has an automatic adjustment function that causes the optimum images to be projected. However, for some types of signal, the correct adjustments may not be obtained even after automatic adjustment is carried out. In such cases, use the "Tracking" and "Sync." menu commands to make the adjustments. ☛ "Image" - "Picture Quality" - "Tracking", "Sync." page 26
Has the correct resolution been selected? **Only when projecting computer images**	Set the computer so that the signals that are output are compatible with this projector. ☛ "List of Supported Monitor Displays" page 45, Computer documentation

■ Image is truncated (large) or small

Has the correct aspect been selected?	Press (Asp) to select the aspect that corresponds to the input signal. ☛ p.18 If images with subtitles are being projected using "Zoom", use the "Zoom Caption" menu command to adjust the images. ☛ page 28
Has the "Position" setting been adjusted correctly?	Use the "Position" menu command to make the adjustment. ☛ "Setting" - "Screen" - "Position" page 27
Has the computer been set for dual display? **Only when projecting computer images**	If dual display has been activated in the Display Properties of the computer's Control Panel, the projector will only project about half of the image on the computer screen. To display the whole of the image on the computer screen, turn off the dual display setting. ☛ Computer video driver documentation
Has the correct resolution been selected? **Only when projecting computer images**	Set the computer so that the signals that are output are compatible with this projector. ☛ "List of Supported Monitor Displays" page 45, Computer documentation

■ Image colours are not right

Are the image signal format settings correct?	If a composite video or S-Video signal is being input If projection does not occur when the "Video Signal" menu command is set to "Auto", select the signal format that matches the signal source. ☛ "Setting" - "Input Signal" - "Video Signal" page 30
	If the signal source is connected to the [InputA] port Use the "Input Signal" menu command to set the signal format that matches the signal that is being projected from the connected equipment. ☛ "Setting" - "Input Signal" - "Input A" page 30 You can also press (A) on the remote control to select the format. ☛ page 15
Are the cables connected correctly?	Check that all of the cables required for projection are securely connected. ☛ page 12
Has the image contrast been adjusted correctly?	Use the "Contrast" menu command to adjust the contrast. ☛ "Image" - "Picture Quality" - "Contrast" page 26
Has the colour been adjusted correctly?	Use the "Color Temp." and "Skin Tone" menu command to adjust the colour. ☛ "Image" - "Picture Quality"- "Color Temp.", "Skin Tone" page 26

Have the colour intensity and tint been adjusted correctly? **Only when projecting images from a video source**	Use the "Color Saturation" and "Tint" menu commands to adjust the colour and tint. ☛ "Image"- "Picture Quality" - "Color Saturation", "Tint" page 26

■ Images appear dark

Has the image brightness been adjusted correctly?	Use the "Brightness" menu commands to make the adjustments. ☛ "Image" - "Picture Quality" - "Brightness" page 26
Has the image contrast been adjusted correctly?	Use the "Contrast" menu command to adjust the contrast. ☛ "Image" - "Picture Quality" - "Contrast" page 26
Is the lamp due for replacement?	When the lamp is nearly due for replacement, the images will become darker and the colour quality will become poorer. When this happens, the lamp should be replaced with a new one. ☛ page 42

■ Projection stops automatically

Is sleep mode active?	When "Sleep Mode" has been set to ON, the lamp turns off automatically if no signal is input for about 30 minutes, and the projector switches to standby mode. Press the On button on the remote control or the Power button on the projector's control panel to turn the projector's power back on. To cancel the sleep mode setting, change "Sleep Mode" menu command to "OFF". ☛ "Setting" - "Operation" - "Sleep Mode" page 29

Problems when projection starts

■ Power does not turn on

Have you pressed the [Power] button?	Press On on the remote control or Power on the projector's control panel.
Is "Child Lock" set to "ON"?	If the "Child Lock" menu command is set to "ON", press Power on the projector's control panel for about 3 seconds or press On on the remoto control to turn the power on. ☛ "Setting" - "Operation" - "Child Lock" page 29
Are all of the indicators switched off?	Disconnect the power cable and then reconnect it. ☛ page 14 Check the circuit breaker to see if power is being supplied.
Do the indicators turn off and on when the power cable is touched?	Turn the power off, disconnect the power cable and then reconnect it. If this does not solve the problem, there may be a problem with the power cable. Then contact your dealer or the nearest address provided at "International Warranty Conditions" in *Safety Instructions/World-Wide Warranty Terms* booklet.

Other problems

■ No sound can be heard or the sound is faint

Is the audio source connected correctly?	Check that the cable is connected to the [Audio] input port.
Has the volume been adjusted to the minimum setting?	Adjust the volume so that sound can be heard. ☛ page 17
Is A/ V Mute mode active?	Press on the remote control to cancel the A/V mute.

■ The remote control does not work

Is the remote control light-emitting area facing towards the remote control light-receiving area when it is operated?	Face the remote control towards the remote control light-receiving area. The operating angle for the remote control is approximately ±30° horizontally and approximately ±15° vertically. ☛ page 13
Is the remote control too far from the projector?	The operating range for the remote control is approximately 6m. ☛ page 13
Is direct sunlight or strong light from fluorescent lamps shining onto the remote control light-receiving area?	Set the projector up in a location where strong light will not shine onto the remote control light-receiving area.
Are the batteries dead, or have the batteries been inserted correctly?	Insert new batteries, while making sure that they face correctly. ☛ page 13
Has a remote control button been pressed for more than 30 seconds?	If any of the buttons on the remote control are pressed down for more than 30 seconds, the remote control stops sending signals (remote control's sleep mode) . The purpose of this is to prevent the batteries from being consumed due to something being placed on top of the remote control. When the button is released, normal remote control operation will resume.

This section describes maintenance tasks such as cleaning the projector and replacing consumable parts.

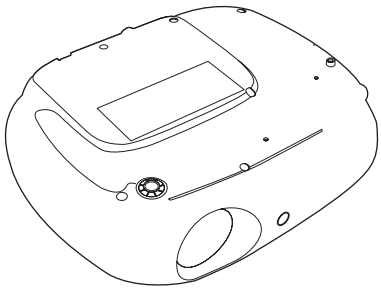
Cleaning

You should clean the projector if it becomes dirty or if the quality of projected images starts to deteriorate.

> Be sure to read the separate *Safety Instructions/World-Wide Warranty Terms* booklet for details on safe handling of the projector during cleaning.

Cleaning the air filter and air intake vent

If the air filter or air intake vent becomes blocked with dust, the message "The projector is overheating. Clean or replace the air filter and lower the room temperature" will be displayed and you must clean the filter or vent.
To do so turn the projector upside-down and use a vacuum cleaner.



> If dust collects on the air filter or the air intake vent, it can cause the internal temperature of the projector to rise, and this can lead to problems with operation and shortening of the optical engine's service life. It is recommended that you clean these parts at least once every three months. Clean them more often than this if using the projector in particularly dusty environments.

Cleaning the projector case

Clean the projector case by wiping it gently with a soft cloth.
If the projector is particularly dirty, moisten the cloth with water containing a small amount of neutral detergent, and then firmly wring the cloth dry before using it to wipe the projector case. Then wipe the case again with a soft, dry cloth.

> Do not use volatile substances such as wax, alcohol or thinner to clean the projector case. These can cause the case to warp and make the coating finish peel off.

Cleaning the lens

Use a commercially-available air blower, or use a lens cleaning paper to gently wipe the lens.

> Do not rub the lens with harsh materials or subject the lens to shocks, as it can easily become damaged.

Consumable replacement periods

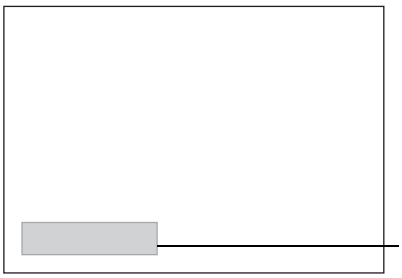
Air filter replacement period

If the air filter has been broken or the "Replace" message is displayed even though the air filter has been cleaned.

Replace with an optional air filter.
☛ "Replacing the air filter" page 42

Lamp replacement period

- The message "Replace the lamp." appears on the screen when projection starts.



- The projected images get darker or start to deteriorate.

Tip:
- The replacement warning message is set to appear after a minimum of about 1900 hours of lamp use in order to maintain the initial brightness and quality of the projected images. The time taken for the message to appear will vary depending on usage conditions such as Color Mode settings.
  If you continue to use the lamp after this period, the possibility of the lamp breaking becomes greater. When the lamp replacement message appears, replace the lamp with a new one as soon as possible, even if it is still working.
- Depending on the characteristics of the lamp and on the way it has been used, the lamp may become darker or stop working before the lamp warning message appears. You should always have a spare lamp ready in case it is needed.
- Contact your dealer for a spare lamp.

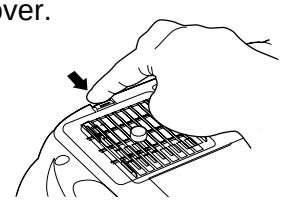
Replacing consumables

Replacing the air filter

Tip: Dispose of used air filters properly in accordance with your local regulations.
Air Filter:
Polypropylene

1 Turn off the power, wait until the projector cools down and the "beep beep" tone sounds, then disconnect the power cable.

2 Remove the air filter cover.



Put your finger under the latch and pull it upward.

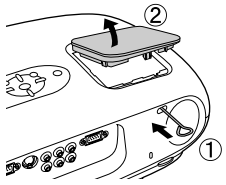
Replacing the lamp

Caution:

If the lamp stops working and needs to be replaced, there is the danger that the lamp may already be broken.
If replacing the lamp of a projector which has been installed to the ceiling, you should always assume that the lamp is broken and handle it with extreme care during removal. Furthermore, you should stand to the side of the projector, not underneath it.

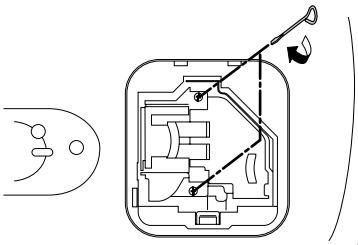
1 Turn off the power, wait until the projector cools down and the "beep beep" tone sounds, then disconnect the power cable.
* Wait until the lamp cools down (takes approximately 1 hour).

2 Remove the lamp cover.

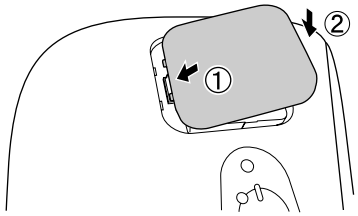


To remove the cover, use a screwdriver (the one supplied in the same package as the optional lamp) inserted into the lamp cover open switch.

6 Securely tighten the lamp fixing screws.



7 Install the lamp cover.



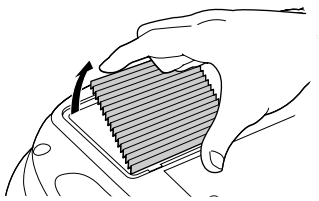
Resetting the lamp operating time

The lamp operating time must always be reset after the lamp has been replaced with a new one.
The projector has a built-in counter which keeps track of the lamp operating time. When the cumulative operating time reaches a certain point, it causes the replacement warning message to be displayed.

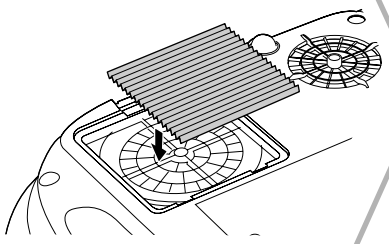
1 Press On to turn on the power.

2 Press M to display the configuration menu.

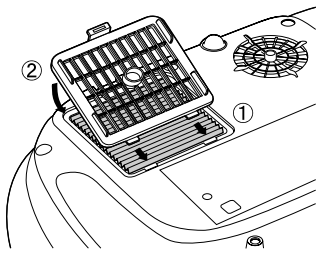
3 Remove the old air filter.



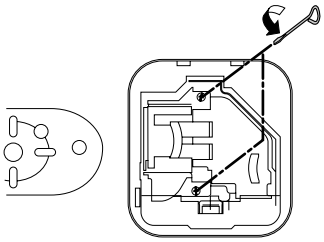
4 Insert the new air filter.



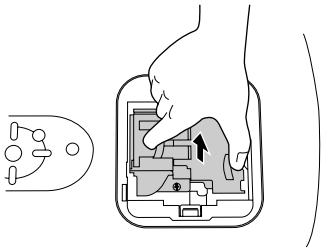
5 Install the air filter cover.



3 Loosen the lamp fixing screws.

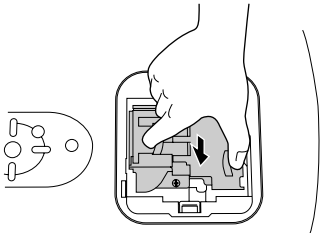


4 Remove the old lamp.



Pull out straight.

5 Insert the new lamp.

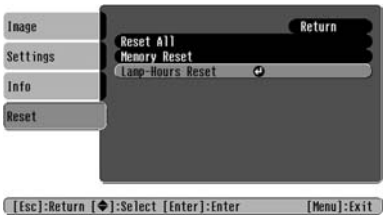


Make sure that it faces the correct way.

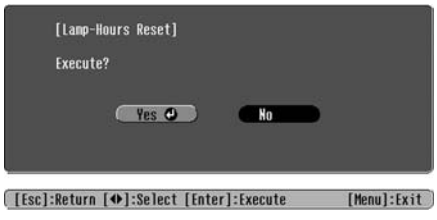
Caution:

- Install the lamp and the lamp cover securely. The lamp will not turn on if the lamp or the lamp cover is not installed correctly.
- The lamp contains mercury. Dispose of used lamps properly in accordance with your local regulations.

3 Select “Lamp - Hours Reset“ from the “Reset“ menu.



4 Select “Yes“ and then press Enter.



Optional Accessories

The following optional accessories are available for purchase if required. This list of optional accessories is current as of June, 2005. Details of accessories are subject to change without notice. Varies depending on country of purchase.

Lamp Unit	ELPLP33

(1 spare lamp, 1 spare screwdriver)
Use as a replacement for spent lamps.

Air Filter Set	ELPAF09

(1 air filter)
Use as a replacement for old air filters.

50" Portable Screen	ELPSC06

A compact screen which can be carried easily.
(Aspect 4:3)

60" Portable Screen	ELPSC07
80" Portable Screen	ELPSC08
100" Portable Screen	ELPSC10

A portable roll-type screen. (Aspect 4:3)

80" Spring Roller Screen	ELPSC15

A roll-up screen.
(Aspect 16:9)

Screen Stand	ELPSCST01

A stand for the 80" Spring Roller Screen.

Soft Carry Case	ELPKS54

Use this case if you need to carry the projector by hand.

VGA-HD15 PC Cable (1.8 m)	ELPKC02
VGA-HD15 PC Cable (3 m)	ELPKC09
VGA-HD15 PC Cable (20 m)	ELPKC10

(For mini D-Sub 15-pin/mini D-Sub 15-pin)
Use to connect the projector to a computer.

Ceiling Mount*	ELPMB19

(with ceiling plate)
Use when installing the projector to a ceiling.

Ceiling Pipe 600 (600 mm/white)*	ELPFP07

Use when installing the projector to a high ceiling or a ceiling with veneer panels.

*A special method of installation is required in order to suspend the projector from the ceiling. Please contact the place of purchase if you would like to use this installation method.

List of Supported Monitor Displays

Depending on the setting, the output screen resolution will change slightly.

Component Videog

4:3 16:9 : Aspect Units: Dots

Signal	Resolution	Aspect mode		
		Normal	Squeeze	Zoom
SDTV(525i, 60Hz) (D1)	640×480 640×360*	640×480 4:3	854×480 16:9	854×480 16:9
SDTV(625i, 50Hz)	768×576 768×432*	640×480 4:3	854×480 16:9	854×480 16:9
SDTV(525p) (D2)	640×480 640×360*	640×480 4:3	854×480 16:9	854×480 16:9
SDTV(625p)	768×576 768×432*	640×480 4:3	854×480 16:9	854×480 16:9
HDTV(750p)16:9 (D4)	1280×720	854×480 16:9	-	-
HDTV(1125i)16:9 (D3)	1920×1080	854×480 16:9	-	-

*Letterbox signal

Composite Video/S-Video

4:3 16.9 : Aspect Units: Dots

Signal	Resolution	Aspect mode		
		Normal	Squeeze	Zoom
TV(NTSC)	640×480 640×360*	640×480 4:3	854×480 16:9	854×480 16:9
TV (PAL, SECAM)	768×576 768×432*	640×480 4:3	854×480 16:9	854×480 16:9

*Letterbox signal

RGB Video/Computer

Units: Dots

Signal	Resolution	Aspect mode		
		Normal	Squeeze	Zoom
VGA60	640×480 640×360*2	640×480	854×480	854×480
VESA72/75/85, iMac*1	640×480 640×360*2	640×480	854×480	854×480
SVGA56/60/72/75/85, iMac*1	800×600 800×450*2	640×480	854×480	854×480
XGA60/70/75/85, iMac*1	1024×768 1024×576*2	640×480	854×480	854×480
MAC13"	640×480	640×480	854×480	854×480
MAC16"	832×624	640×480	854×480	854×480
MAC19"	1024×768	640×480	854×480	854×480
SDTV(525i, 60Hz)	640×480 640×360*2	640×480	854×480	854×480
SDTV(525p)	640×480 640×360*2	640×480	854×480	854×480
SDTV(625i, 50Hz)	768×576 768×432*2	640×480	854×480	854×480
SDTV(625p)	768×576 768×432*2	640×480	854×480	854×480
HDTV(750p)	1280×720	854×480	-	-
HDTV(1125i)	1920×1080	854×480	-	-

*1 Connection is not possible if the equipment does not have a VGA output port.

*2 Letterbox signal

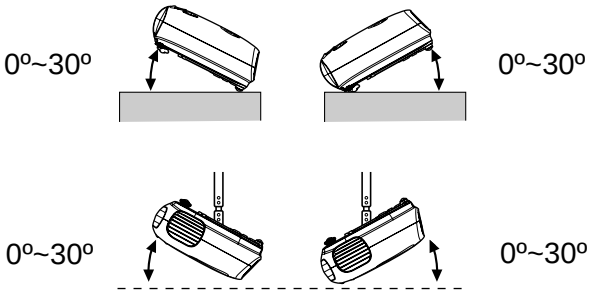
It may be possible to project signals which are not listed in the above table. However, not all functions may be supportable with such signals.

Specifications

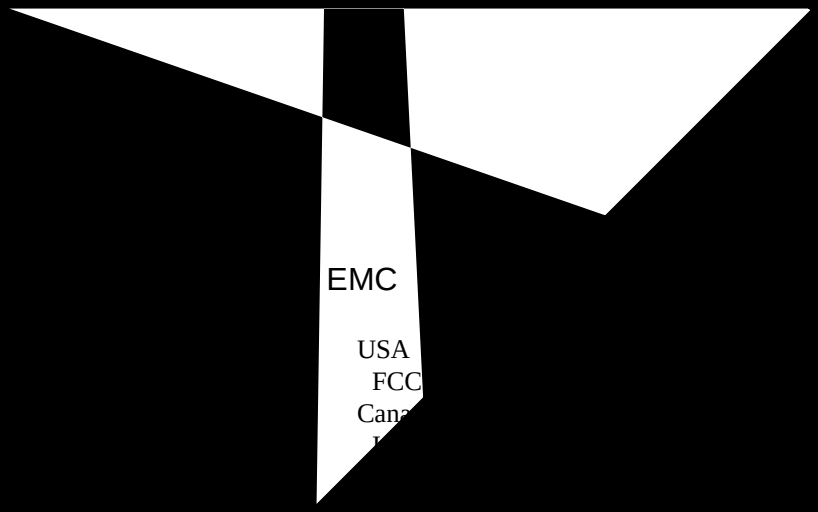
Product name	Home Projector EMP-TW20		
Dimensions	373 (W) × 111 (H) × 295 (D) mm (not including feet)		
Panel size	0.55 inches		
Display method	Polysilicon TFT active matrix		
Resolution	409,920 pixels (854 (W) × 480 (H) dots) × 3		
Scanning frequencies	Analogue	Pixel clock	:13.5 – 110 MHz
		Horizontal	:15 – 92 kHz
		Vertical	:50 – 85 Hz
Focus adjustment	Manual		
Zoom adjustment	Manual (approx. 1 : 1.5)		
Lens shift	Manual (Maximums: Approx. 50% vertically, 25% horizontally)		
Lamp (light source)	UHE lamp, 135 W, Model No.: ELPLP33		
Max.audio output	1W Monaural		
Speaker	1		
Power supply	100- 240VAC 50/60Hz 2.3-1.0A Power Consumption Operating: 200W(100-120V area), 190W(200-240V area) Standby: 4.0W(100-120V area), 5.0W(200-240V area)		
Operating temperature	+5° – +35°C (No condensation)		
Storage temperature	-10° – +60°C (No condensation)		
Weight	Approx. 3.5 kg		
Ports	InputA	1	RCA pin jack × 4
	InputB	1	Mini D-Sub 15-pin (female) blue
	Video input	1	RCA pin jack
	S-Video input	1	Mini DIN 4-pin
	Audio input	1	RCA pin jack × 2 (L, R)
	Control (RS-232C)	1	D-Sub 9-pin (male)

Pixelworks DNX™ ICs are used in this Projector.

Angle of tilt



If you set the projector higher than 30º, it could damage the projector and cause an accident.


EMC
USA
FCC
Cana

Glossary

Following is an explanation of some of the terms used in this guide which may be unfamiliar or which were not explained in the manual itself. Further information can be obtained by referring to other commercially-available publications.

Aspect

The ratio between an image's length and its height. HDTV images have an aspect of 16:9 and appear elongated. The aspect for standard images is 4:3.

Colour temperature

The temperature of an object which is emitting light. If the colour temperature is high, the colors tend to take on a bluish tinge. If the colour temperature is lower, the colors tend to take on a reddish tinge.

Component video

Video signals which have the video brightness signals and color signals separated, in order to provide better image quality.
In high-definition TV (HDTV), it refers to images which consist of three independent signals: Y (luminance signal), and Pb and Pr (color difference signals).

Composite video

Video signals which have the video brightness signals and color signals mixed together. The type of signals commonly used by household video equipment (NTSC, PAL and SECAM formats).
Video signals which consist of a carrier signal Y (luminance signal) within the color bar signal, and a chroma or color signal (CbCr).

Contrast

The relative brightness of the light and dark areas of an image can be increased or decreased in order to make text and graphics stand out more clearly, or to make them appear softer.

Cool-down

This is the process by which the projector's lamp is cooled down after it has become hot through use. It is carried out automatically when the [Power] button on either the remote control or the projector's control panel has been pressed to turn off the projector. Do not disconnect the power cable while cool-down is in progress, otherwise the cool-down process will not work properly. If the cool-down period is not allowed to finish normally, the projector's lamp and internal components will remain at high temperatures, and this may shorten the useful life of the lamp or cause problems with the operation of the projector. The projector takes about 20 seconds to cool down. The actual time will vary depending on the external air temperature.

HDTV

An abbreviation for High-Definition Television. It refers to high-definition systems which satisfy the following conditions.
- Vertical resolution of 750p or 1125i or greater (p = progressive , i = interlaced)
- Screen aspect of 16:9
- Dolby Digital audio reception and playback (or output)

Interlace

A method of image scanning whereby the signal bandwidth used is approximately half that required for sequential scanning when images with the same still picture resolution are broadcast.

NTSC

An abbreviation for National Television Standards Committee, and a format for ground-based analogue colour television broadcasts. This format is used in Japan, North America and Central and South America.

PAL

An abbreviation for Phase Alternation by Line, and a format for ground-based analogue colour television broadcasts. This format is used in Western European countries except France, and also in Asian countries such as China and in Africa.

Progressive

A method of image scanning whereby the image data from a single image is scanned sequentially from top to bottom to create a single image.

Refresh rate

The light-emitting element of a display maintains the same luminosity and color for an extremely short time. Because of this, the image must be scanned many times per second in order to refresh the light emitting element. The number of refresh operations per second is called the "refresh rate", and is expressed in hertz (Hz).

S-Video

A video signal which has the luminance component and color component separated in order to provide better image quality.
It refers to images which consist of two independent signals: Y (luminance signal), and C (color signal).

SDTV

An abbreviation for Standard Definition Television. It refers to standard television systems which do not satisfy the conditions for HDTV.

SECAM

An abbreviation for Sequential Couleur A Memoire, and a format for ground-based analogue colour television broadcasts. This format is used in France, Eastern Europe and the former Soviet Union, the Middle East and Africa.

Security lock

A device consisting of a protector case with a hole in it that a commercially-available theft-prevention cable can be passed through in order to secure the device to a table or pillar. This projector is compatible with the Microsaver Security System manufactured by Kensington.

SVGA

A type of image signal with a resolution of 800 (horizontal) x 600 (vertical) dots which is used by IBM PC/ AT-compatible computers.

Sync. (Synchronization)

The signals output from computers have a specific frequency. If the projector frequency does not match this frequency, the resulting images will not be of a good quality. The process of matching the phases of these signals (the relative position of the crests and troughs in the signal) is called "synchronization". If the signals are not synchronized, problems such as flickering, blurriness and horizontal interference can occur.

Tracking

The signals output from computers have a specific frequency. If the projector frequency does not match this frequency, the resulting images will not be of a good quality. The process of matching the frequency of these signals (the number of crests in the signal) is called "tracking". If tracking is not carried out correctly, wide vertical stripes will appear in the projected images.

VGA

A type of image signal with a resolution of 640 (horizontal) x 480 (vertical) dots which is used by IBM PC/ AT-compatible computers.

XGA

A type of image signal with a resolution of 1,024 (horizontal) x 768 (vertical) dots which is used by IBM PC/ AT-compatible computers.

YCbCr

The carrier signal which is contained in the color bar signal used in modern TV transmissions. The name comes from the Y (luminance) signal and the CbCr (chroma [color]) signals.

YPbPr

The carrier signal which is contained in the color bar signal used in high-definition TV (HDTV) transmissions. The name comes from the Y (luminance) signal and the PbPr (color difference) signals.

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